

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Edward Jung, *et al.*  
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Examiner : Oleg Survillo  
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**APPELLANT'S SECOND SUPERSEDING APPEAL BRIEF**

Dear Madam or Sir:

This paper is responsive to the second Notice of Non-Compliant Appeal Brief mailed on February 25, 2010, and to the underlying Final Office Action dated April 2, 2009. This Second Superseding Appeal Brief is intended to replace all briefs previously filed in the subject appeal.

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**I. REAL PARTY IN INTEREST**

The real party in interest on this appeal is Searete, LLC by virtue of assignments of the inventors recorded on 04/27/2004, at Reel 015265 and Frame 0750. Searete, LLC is wholly owned by Intellectual Ventures Management LLC.

## **II. RELATED APPEALS AND INTERFERENCES**

Appellant's legal representative and the real party in interest are unaware of any appeal or interference which will directly affect, be directly affected by, or have a bearing on the Board's decision in the present appeal.

### **III. STATUS OF CLAIMS**

Claims 1-180 were pending at the time the Office Action was mailed on April 2, 2009. None of the claims have been cancelled.

Claims 108-128 and 154-178 stand rejected under 35 USC §112, ¶1 as failing to comply with the written description requirement.

Claims 1-5, 8, 9, 11-12, 14, 16, 19-21, 23, 25, 31-39, 42-46, 48, 50-53, 56-57, 59-60, 62, 64, 67-69, 71, 73, 79-87, 90-94, 96, 98-101, 104, 105, 108-112, 114-117, 119-122, 125-126, 129-131, 133, 135, 137-138, 140, 142, 144-147, 150-151, 154-156, 158, 160, 162-163, 165, 167, 169-172, 175, and 176 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett (US 5615367) and in further view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al. (Madden I).

Claims 6-7 and 54-55 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Chiloyan (US 7165109).

Claims 10, 13, 15, 17-18, 22, 24, 40-41, 49, 58, 61, 63, 65-66, 70, 72, 88-89, 97, 113, 118, 132, 134, 136, 139, 141, 143, 157, 159, 161, 164, 166, and 168 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Kung (US 2005/0021724).

Claims 26 and 74 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Madden I, and further in view of Chiloyan (US Patent No.: 7,165,109).

Claims 27-30 and 75-78 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Madden I, and further in view of Godlewski (US 6421354).

Claims 47 and 95 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Regli (US 2005/0141706).



Claims 102-103, 106, 123-124, 127, 148-149, 152, 173-174, and 177 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Nelson (US 2004/0122849).

Claims 107, 128, 153, and 178 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Madden “TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks” (Madden II).

Claims 179 and 180 stand rejected under 35 USC §103(a) as being unpatentable over Madden I in view of Mulgund.

Appellant appeals the rejections of claims 1-180 under 35 U.S.C. §103(a).<sup>1</sup>

All pending claims are attached in the Claims Appendix.

#### **IV. STATUS OF AMENDMENTS**

An Amendment under 37 C.F.R. 1.116 filed 31 July, 2009 in response to the Examiner’s Final Office Action mailed 2 April, 2009, has been refused entry by Examiner Survillo.

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<sup>1</sup> Appellant will eagerly and cooperatively work with the Examiner to resolve the Examiner’s remaining objections to claims and drawings after the issues in this appeal have been resolved.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

Examiner rejections of six sets of claims<sup>2</sup> is appealed herein: (i) Independent Claim 1 and its Dependent Claims 2-107; (ii) Independent Claim 108 and its Dependent Claims 109-128; (iii) Independent Claim 129 and its Dependent Claims 130-153; (iv) Independent Claim 154 and its Dependent Claims 155-178; (v) Independent Claim 179; and (vi) Independent Claim 180.

### **A. Summary of Independent Claim 1**

A method is implemented in an environment that includes but is not limited to a creating a plurality of first-administered content indexes for a first set of notes (See Specification, page 2, paragraph 5; See Drawings Figs. 2-4) . The plurality of first-administered content indexes of the first set of notes are aggregated into an aggregated content index using a gateway note included within the first set of notes. (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph; See Drawings Figs. 3 and 7) One or more second-administered content indexes are created for a second set of notes (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph; See Drawings Figs. 3 and 7). At least a part of the second-administered content indexes of the second set of notes are obtained, and a federated index from the aggregated content index aggregated by the gateway note is created along with at least a part of the one or more second-administered content indexes. (See Specification, page 21, first paragraph, page 28 second paragraph, to page 29; See Drawings Figs. 5, 9 and 10); (Independent Claim 1).

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<sup>2</sup> Appellant respectfully points out that in accordance with 37 CFR §41.37(c)(1)(v), Appellant herein provides a “summary of claimed subject matter [having a] concise explanation of the subject matter defined in each of the independent claims involved in the appeal, which shall refer to the specification by page and line number, and to the drawing, if any, by reference characters. For each independent claim involved in the appeal and for each dependent claim argued separately under the provisions of paragraph (c)(1)(vii) of this section, every means plus function and step plus function as permitted by 35 U.S.C. §112, sixth paragraph, must be identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and to the drawing, if any, by reference characters.” However, Appellant respectfully points out that the herein-provided summary is illustrative only and is NOT intended to be in any way limiting. Appellant is providing this summary under protest that the USPTO’s regulations in this area exceed its statutory authority (*e.g.* are *ultra vires*).

## **B. Summary of Dependent Claims 2-107**

Creating one or more first-administered content indexes for a first set of motes, the method further includes, but is not limited to, aggregating at least a part of one or more mote-addressed content indexes from the first set of motes. *See specification at, e.g., pages 23 - 25;* (Dependent Claim 2).

Aggregating at least a part of one or more mote-addressed content indexes from the first set of motes, the method further includes, but is not limited to, creating one or more multi-mote content indexes of the first set of motes. *See specification at, e.g., page 15, second paragraph – page 15 first paragraph, page 17, second paragraph, page 18, third paragraph, page 20 second paragraph – page 21;* (Dependent Claim 4).

Aggregating at least a part of one or more mote-addressed content indexes from the first set of motes, the method further includes, but is not limited to, receiving at least a part of one or more multi-mote content indexes of the first set of motes. *See specification at, e.g., page 17, second paragraph to page 18;* (Dependent Claim 11).

Aggregating at least a part of one or more mote-addressed content indexes from the first set of motes, the method further includes, but is not limited to, creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes. *See specification at, e.g., page 17, 17, second paragraph to page 18;* (Dependent Claim 16).

Aggregating the plurality of first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote included within the first set of motes, the method further includes, but is not limited to, receiving at least

a part of one or more multi-mote content indexes of the first set of motes. *See specification at, e.g., page 18, second paragraph to page 18 third paragraph; page 24, para. 4, page 32, paragraph 1 to page 36, paragraph 1;* (Dependent Claim 20).

Creating one or more first-administered content indexes for a first set of motes, the method further includes, but is not limited to, determining at least one of a sensing function or a control function at a mote, *See specification at, e.g., page 11 last paragraph – page 12 first paragraph* and creating one or more mote-addressed content indexes in response to said determining. *See specification at, e.g., page 9 second paragraph, - page 14, para. three, page 15, para. two, page 17, paragraph 2, page 20, para.two, page 23, para. one, page 31, para. two;* (Dependent Claim 20).

Determining at least one of a sensing function or a control function at a mote, the method further includes, but is not limited to, communicating with at least one device-associated entity. *See specification at, e.g., page 14, para. three, page 15, para. two, page 17, paragraph 2, page 20, para. two, page 23, para. one, page 31, para. two, page 32 first paragraph – page 36, first paragraph;* (Dependent Claim 25).

One or more mote-addressed content indexes in response to said determining, the method further includes, but is not limited to, creating at least one extensible index. *See specification at, e.g., page 11, second paragraph;* (Dependent Claim 31).

In creating one or more mote-addressed content indexes, the method further includes, but is not limited to, establishing an index-creating agent at a first gateway mote of the first set of motes, *See specification at, e.g., page 9, second and third paragraph*, determining a mote-network address of the first gateway mote, *See specification at, e.g., page 9, third paragraph*, page 11, paragraphs 1-2, , and associating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index with the mote-

network address of the first gateway mote. *See specification at, e.g., page 11, paragraphs 1-2., page 13, ,page 14, third paragraph, page 15, para. 2, page 17 paragraph 2, page 20, para.2, page 23, para. 2;* (Dependent Claim 36).

Creating one or more mote-addressed content indexes, the method further includes, but is not limited to, migrating to a first gateway mote of the first set of motes, *See specification at, e.g., page 9, paragraphs 2 and 3;* installing an index creation agent at the first gateway mote, *See specification at, e.g., page 9, paragraph 3* and querying at least one device entity with the index creation agent. *See specification at, e.g., page 9, paragraph 2 to page 11, paragraph 2;* (Dependent Claim 37).

Creating one or more mote-addressed content indexes in response to said determining, the method further includes, but is not limited to, selecting from one or more predetermined protocols. *See specification at, e.g., page 10, paragraph 38 to page 11, paragraph 1;* (Dependent Claim 45).

Creating one or more second-administered content indexes for a second set of motes, the method further includes, but is not limited to, aggregating at least a part of one or more mote-addressed content indexes from the second set of motes. *See specification at, e.g., page 2, para. 5; page 14, para. 1; page 21, para. 1; page 28 second paragraph, to page 39; (Fig. 2);* (Dependent Claim 50).

Aggregating at least a part of one or more mote-addressed content indexes from the second set of motes, the method further includes, but is not limited to, creating one or more multi-mote content indexes of the second set of motes. *See specification at, e.g., page 9, paragraph 2, page 11, paragraph 1; page 14, para. 2, page 15, para.2, page 17, paragraph 2, page 20, para. 2, page 25, para. 1, page 31, para.2;* (Dependent Claim 52).

Aggregating at least a part of one or more mote-addressed content indexes from the second set of motes, the method further includes, but is not limited to, receiving at least a part of one or more multi-mote content indexes of the second set of motes. *See specification at, e.g. page 32, paras. 1 through page 36, paragraph 1;* (Dependent Claim 59).

Aggregating at least a part of one or more mote-addressed content indexes from the second set of motes, the method further includes, but is not limited to, creating an aggregate of at least a part of one or more multi-mote content indexes of the second set of motes. *See specification at, e.g., page 9, paragraph 2, page 11, paragraph 1; page 14, para. 2, page 15, para.2, page 17, paragraph 2, page 20, para. 2, page 25, para. 1, page 31, para.2;* (Dependent Claim 64).

Obtaining at least a part of the second-administered content indexes of the second set of motes, the method further includes, but is not limited to, receiving at least a part of one or more multi-mote content indexes of the second set of motes. *See specification at, e.g., page 32, paragraph 1 to page 36, paragraph 1;* (Dependent Claim 68).

Creating one or more second-administered content indexes for a second set of motes, the method further includes, but is not limited to, determining at least one of a sensing function or a control function at a mote, and creating one or more mote-addressed content indexes in response to said determining. *See specification at, e.g., page 9 second paragraph, - page 14, para. three, page 15, para. two, page 17, paragraph 2, page 20, para.two, page 23, para. one, page 31, para. two;* (Dependent Claim 73).

Determining at least one of a sensing function or a control function at a mote, the method further includes, but is not limited to, communicating with at least one

device-associated entity. *See specification at, e.g., page 14, para. three, page 15, para. two, page 17, paragraph 2, page 20, para. two, page 23, para. one, page 31, para. two, page 32 first paragraph – page 36, first paragraph;* (Dependent Claim 75).

One or more mote-addressed content indexes is created in response to the determining, the method further includes, but is not limited to, creating at least one extensible index. *See specification at, e.g. page 11, second paragraph;* (Dependent Claim 79).

One or more mote-addressed content indexes being created in response to said determining, further includes, but is not limited to, selecting from one or more predetermined protocols. *See specification at, e.g., page 10, paragraph 38 to page 11, paragraph 1;* (Dependent Claim 93).

### **C. Summary of Independent Claim 108 and its Dependent Claims 109-128**

A system is implemented in an environment that includes but is not limited to means for creating a plurality of first-administered content indexes for a first set of motes (See Specification, page 2, paragraph 5; See Drawings Figs. 2-4). A means for aggregating the plurality of first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote is included within the first set of motes. (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph; See Drawings Figs. 3 and 7) A means for creating one or more second-administered content indexes for a second set of motes is provided (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph; See Drawings Figs. 3 and 7) along with a means for obtaining at least a part of the second-administered content indexes of the second set of motes. (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph; See Drawings Figs. 3 and 7) A means for creating a federated index from the aggregated

content index aggregated by the gateway mote and at least a part of the one or more second-administered content indexes is also provided. (See Specification, page 21, first paragraph, page 28 second paragraph, to page 29; See Drawings Figs. 5, 9 and 10) At least one of the means for creating or the means for obtaining includes, but is not limited to, at least one of electrical circuitry for creating or electrical circuitry for obtaining. (See Specification, pp. 2-3, page 21, first paragraph, page 28, second paragraph to page 29; page 40, second paragraph – page 41, first paragraph; See Drawings Figs. 5, 9 and 10); (Independent Claim 108).

#### **D. Summary of Dependent Claims 109-128**

Means for creating one or more first-administered content indexes for a first set of motes (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph; See Drawings Figs. 3 and 7) further includes, but is not limited to, means for aggregating at least a part of one or more mote-addressed content indexes from the first set of motes. *See specification at, e.g., pages 23-25;* (Dependent Claim 109).

Means for aggregating the plurality of first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote included within the first set of motes (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph; See Drawings Figs. 3 and 7) further includes, but is not limited to, means for receiving at least a part of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes. *See specification at, e.g., page 9, paragraphs 2-3, page 11, paragraphs 1-2, page 13, page 14, paragraph 3, page 15, paragraph 2, page 17, paragraph 2, page 20 paragraph 2, page 23 paragraph 2;* (Dependent Claim 113).

Means for obtaining at least a part of the second-administered content indexes of the second set of motes (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first



paragraph; See Drawings Figs. 3 and 7) further includes, but is not limited to, means for receiving at least a part of a mote-addressed routing/spatial index from a reporting entity at a mote of the second set of motes *See specification at, e.g. page 9, paragraphs 2-3, page 11, paragraphs 1-2, page 13, paged 14, paragraph 3, page 15, paragraph 2, page 17, paragraph 2, page 20 paragraph 2, page 23 paragraph 2*; (Dependent Claim 118).

#### **E. Summary of Independent Claim 154**

A method is implemented that includes but is not limited to, a plurality of first-administered content indexes from a first set of motes is aggregated into an aggregated content index using an aggregating mote from among the first set of motes. (See Specification, page 2, paragraph 5, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph) At least a part of a second-administered content index from a second set of motes is obtained to create a federated index from the aggregated content index from the aggregating mote and at least a part of the second-administered content index. *See* (See Specification, page 21, first paragraph, page 28 second paragraph, to page 39); (*Fig. 2*); (Independent Claim 129).

#### **F. Summary of Dependent Claims 155-178**

Obtaining at least a part of a first-administered content index from a first set of motes, further includes, but is not limited to, receiving at least a part of one or more multi-mote content indexes of the first set of motes. *See specification at, e.g., See specification at, e.g., page 15, second paragraph – page 15 first paragraph, page 17, second paragraph, page 18, third paragraph, page 20 second paragraph – page 21*; (Dependent Claim 130).

Obtaining at least a part of a second-administered content index from a second set of motes further includes, but is not limited to, receiving at least a part of one or more multi-mote content indexes of the second set of motes. *See specification at, e.g., page 17, second paragraph to page 18*; (Dependent Claim 130).

## **G. Summary of Independent Claim 154**

A system is implemented that includes but is not limited to, means for aggregating a plurality of a first-administered content index from a first set of motes into an aggregated content index using an aggregating mote from among the first set of motes. (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph) A means for receiving at least a part of a second-administered content index from a second set of motes (See Specification, page 2, paragraph 5, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph) is provided along with a means for creating a federated index from the aggregated content index from the aggregating mote and at least a part of the second-administered content index (See Specification, page 21, first paragraph, page 28 second paragraph, to page 39). The at least one of the means for obtaining or the means for creating includes at least one of electrical circuitry for obtaining or electrical circuitry for creating. *See Published Application* (See Specification, pp. 2-3, page 21, first paragraph, page 28 second paragraph, to page 29; page 40, second paragraph – page 41, first paragraph), (*Fig. 2*); (Independent Claim 154).

## **H. Summary of Dependent Claims 155-178**

Means for obtaining at least a part of a first-administered content index from a first set of motes, (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph; See Drawings Figs. 3 and 7) further includes, but is not limited to, means for receiving at least a part of one or more multi-mote content indexes of the first set of motes. *See specification at, e.g., See specification at, e.g., page 17, second paragraph to page 18; page 32, paragraph 1 to page 36, paragraph*; (Dependent Claim 155).

Means for obtaining at least a part of a second-administered content index from a second set of motes, (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph; See Drawings Figs. 3 and 7) further includes, but is not limited to, means for receiving at least a part of one or more multi-mote content indexes of the second set of motes. *See specification at, e.g., See specification at, e.g., page , page 2, paragraph 5, page 14, para. 1; page 21, para. 1; page 28 second paragraph, to page 39; (Fig. 2.)*; (Dependent Claim 162).

## **I. Summary of Independent Claim 179**

A system is implemented that includes but is not limited to, at least one computational system having electrical circuitry and being operably coupled with a first-administered set of motes and a second-administered set of motes. (See Specification, page 2, paragraph 5 through page 3 paragraph 3) At least one gateway mote is included within at least one of the first-administered set of motes or the second-administered set of motes, (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph) the at least one gateway mote includes a multi-mote index creation agent and is configured to receive content indexes from a corresponding plurality of motes of the at least one of the first-administered set of motes or the second-administered set of motes, and aggregate the plurality of content indexes into at least one aggregated index associated with the at least one of the first-administered set of motes or the second-administered set of motes, respectively (See Specification, page 21, first paragraph, page 28 second paragraph, to page 39). At least one federated index creation agent is resident in the computational system. The at least one federated index creation agent is configured to receive the at least one aggregated index, and to create a federated index that includes the at least one aggregated index. *See* page 28 second paragraph, to page 41, (*Fig. 2*); (Dependent Claim 179).

## **J. Summary of Independent Claim 180**

A system is implemented that includes but is not limited to, at least one computational system having electrical circuitry and being operably coupled with a first-administered set of motes and a second-administered set of motes. (See Specification, page 2, paragraph 5 through page 3 paragraph 3) At least one gateway mote is included within at least one of the first-administered set of motes or the second-administered set of motes, the at least one gateway mote includes a multi-mote index creation agent. The at least one gateway is configured to receive a plurality of content indexes from a corresponding plurality of motes of the at least one of the first-administered set of motes or the second-administered set of motes, (See Specification, page 14, 1<sup>st</sup> paragraph, page 21, first paragraph) and aggregate the plurality of content indexes into at least one aggregated index associated with the at least one of the first-administered set of motes or the second-administered set of motes, respectively (See Specification, page 21, first

paragraph, page 28 second paragraph, to page 39). At least one federated index is resident in the computational system. The at least one at least one federated index is configured to contain the at least one aggregated index. *See* page 28 second paragraph, to page 41, (*Fig. 2*); (Dependent Claim 180).

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The issues in this response relate to whether the Examiner has met his burden of establishing a *prima facie* case sufficient to establish that Appellant's Claims 1-180 are unpatentable. Specifically, the issues are as follows:

1. Whether the Examiner has met his burden to show Claims 108-128 and 154-178 fail to comply with the written description requirement.

2. Whether the Examiner has met his burden to show Claims 1-5, 8, 9, 11-12, 14, 16, 19-21, 23, 25, 31-39, 42-46, 48, 50-53, 56-57, 59-60, 62, 64, 67-69, 71, 73, 79-87, 90-94, 96, 98-101, 104, 105, 108-112, 114-117, 119-122, 125-126, 129-131, 133, 135, 137-138, 140, 142, 144-147, 150-151, 154-156, 158, 160, 162-163, 165, 167, 169-172, 175, and 176 are unpatentable over Mulgund in view of Bennett (US 5615367) and in further view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al. (Madden I).

3. Whether the Examiner has met his burden to show Claims 6-7 and 54-55 are unpatentable over Mulgund in view of Bennett, and further in view of Chiloyan (US 7165109).

4. Whether the Examiner has met his burden to show Claims 10, 13, 15, 17-18, 22, 24, 40-41, 49, 58, 61, 63, 65-66, 70, 72, 88-89, 97, 113, 118, 132, 134, 136, 139, 141, 143, 157, 159, 161, 164, 166, and 168 are unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Kung (US 2005/0021724).

5. Whether the Examiner has met his burden to show Claims 26 and 74 are unpatentable over Mulgund in view of Bennett, and further in view of Madden I, and further in view of Chiloyan (US Patent No.: 7,165,109).

6. Whether the Examiner has met his burden to show Claims 27-30 and 75-78 are unpatentable over Mulgund in view of Bennett, and further in view of Madden I, and further in view of Godlewski (US 6421354).

7. Whether the Examiner has met his burden to show Claims 47 and 95 are unpatentable over Mulgund in view of Bennett, and further in view of Regli (US 2005/0141706).

8. Whether the Examiner has met his burden to show Claims 102-103, 106, 123-124, 127, 148-149, 152, 173-174, and 177 are unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Nelson (US 2004/0122849).

9. Whether the Examiner has met his burden to show Claims 107, 128, 153, and 178 are unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Madden “TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks” (Madden II).

10. Whether the Examiner has met his burden to show Claims 179 and 180 are unpatentable over Madden I in view of Mulgund.

## **VII. ARGUMENT**

The Examiner has stated: “Claims 108-128 and 154-178 are rejected under 35 USC §112, ¶1 as failing to comply with the written description requirement.” *See Examiner’s Office Action*, p. 5 (2 April 2009). “Claims 1-5, 8, 9, 11-12, 14, 16, 19-21, 23, 25, 31-39, 42-46, 48, 50-53, 56-57, 59-60, 62, 64, 67-69, 71, 73, 79-87, 90-94, 96, 98-101, 104, 105, 108-112, 114-117, 119-122, 125-126, 129-131, 133, 135, 137-138, 140, 142, 144-147, 150-151, 154-156, 158, 160, 162-163, 165, 167, 169-172, 175, and 176 are rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett (US 5615367) and in further view of “The Design of an Acquisitional Query Processor For Sensor Networks” by Samuel Madden et al. (Madden I).” *See Examiner’s Office Action*, p. 6 (2 April 2009). “Claims 6-7 and 54-55 are rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Chiloyan (US 7165109).” *See Examiner’s Office Action*, p. 37 (2

April 2009). “Claims 10, 13, 15, 17-18, 22, 24, 40-41, 49, 58, 61, 63, 65-66, 70, 72, 88-89, 97, 113, 118, 132, 134, 136, 139, 141, 143, 157, 159, 161, 164, 166, and 168 are rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Kung (US 2005/0021724).” *See Examiner’s Office Action*, p. 39 (2 April 2009). “Claims 26 and 74 are rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Madden I, and further in view of Chiloyan (US Patent No.: 7,165,109).” *See Examiner’s Office Action*, p. 56 (2 April 2009). “Claims 27-30 and 75-78 are rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Madden I, and further in view of Godlewski (US 6421354).” *See Examiner’s Office Action*, p. 57 (2 April 2009). “Claims 47 and 95 are rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Regli (US 2005/0141706).” *See Examiner’s Office Action*, p. 58 (2 April 2009). “Claims 102-103, 106, 123-124, 127, 148-149, 152, 173-174, and 177 are rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Nelson (US 2004/0122849).” *See Examiner’s Office Action*, p. 59 (2 April 2009). “Claims 107, 128, 153, and 178 are rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Madden “TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks” (Madden II).” *See Examiner’s Office Action*, p. 62 (2 April 2009). “Claims 179 and 180 are rejected under 35 USC §103(a) as being unpatentable over Madden I in view of Mulgund.” *See Examiner’s Office Action*, p. 64 (2 April 2009).

In response, Appellant respectfully asserts herein that, under the MPEP and legal standards for patentability as set forth below, the art of record does not establish a *prima facie* case of the unpatentability of Appellant’s claims at issue. Specifically, Appellant respectfully shows below that the art of record does not recite or suggest the text of Appellant’s claims at issue, and hence fails to establish a *prima facie* case of unpatentability. Accordingly, Appellant respectfully requests that the Board reverse the Examiner’s rejections and hold all claims to be allowable over the art of record.

### **A. MPEP Standards for Patentability<sup>3</sup>**

The MPEP states as follows: “the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability. If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant. . . . If examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent.” *MPEP* § 2107 (citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992)); *In Re Glaug*, 283 F.3d 1335, 62 USPQ2d 1151 (Fed. Cir. 2002) (“During patent examination the PTO bears the initial burden of presenting a *prima facie* case of unpatentability. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 252 U.S.P.Q. 785, 788 (Fed. Cir. 1984). If the PTO fails to meet this burden, then the applicant is entitled to the patent.”). Accordingly, unless and until an examiner presents evidence establishing *prima facie* unpatentability, an applicant is entitled to a patent on all claims presented for examination.

#### **1. MPEP Standards for Determining Anticipation**

An examiner bears the initial burden of factually supporting any *prima facie* conclusion of anticipation. *Ex Parte Skinner*, 2 U.S.P.Q.2d 1788, 1788-89 (B.P.A.I. 1986); *In Re King*, 801 F.2d 1324, 521 U.S.P.Q. (BNA) 136 (Fed. Cir. 1986); *MPEP* § 2107 (citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992) (“[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability....”)). Failure of an examiner to meet this burden entitles an applicant to a patent. *Id.* (“[i]f examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent”).

The MPEP indicates that in order for an examiner to establish a *prima facie* case of anticipation of an applicant’s claim, the examiner must first interpret the claim,<sup>4</sup> and

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<sup>3</sup> Appellant is aware that Examiner is familiar with the MPEP standards. Appellant is merely setting forth the MPEP standards to serve as a framework for Appellant’s arguments following and to ensure a complete written record is established. Should Examiner disagree with Appellant’s characterization of the MPEP standards, Appellant respectfully requests correction.

thereafter show that the cited prior art discloses the same elements, in the same arrangement, as the elements of the claim which the examiner asserts is anticipated. More specifically, the MPEP states that “[a] claim is anticipated *only if each and every element as set forth in the claim is found*, either expressly or inherently described, in a single prior art reference. . . . The identical invention must be shown in as complete detail as is contained in the . . . claim. . . . The elements must be arranged as required by the claim . . .” *MPEP* § 2131 (emphasis added). Consequently, under the guidelines of the MPEP set forth above, if there is *any* substantial difference between the prior art cited by an examiner and an applicant’s claim which the examiner asserts is rendered anticipated by the prior art, the prior art does NOT establish a *prima facie* case of anticipation and, barring other rejections, the applicant is entitled to a patent on such claim.

## **2. MPEP Standards for Determining Obviousness**

"[T]he examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness."<sup>5</sup> *MPEP* § 2142. The MPEP indicates that in order for an examiner to establish a *prima facie* case that an invention, as defined by a claim at issue, is obvious, the examiner must (1) interpret the claim at issue; (2) define one or more prior art reference components relevant to the claim at issue; (3) ascertain the differences between the one or more prior art reference components and the elements of the claim at issue; and (4) adduce objective evidence which establishes, under a preponderance of the evidence standard, a teaching to modify the teachings of the prior art reference components such that the prior art reference components can be used to construct a device substantially equivalent to the claim at issue. This last step generally encompasses

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<sup>4</sup> With respect to interpreting a claim at issue, the MPEP directs that, during examination -- as opposed to subsequent to issue -- such claim be interpreted as broadly as the claim terms would reasonably allow, in light of the specification, when read by one skilled in the art with which the claimed invention is most closely connected. *MPEP* § 2111.

<sup>5</sup> An invention, as embodied in the claims, is rendered obvious if an examiner concludes that although the claimed invention is not identically disclosed or described in a reference, the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *MPEP* § 2141 (citing 35 U.S.C. § 103).



two sub-steps: (1) adducement of objective evidence teaching how to modify the prior art components to achieve the individual elements of the claim at issue; and (2) adducement of objective evidence teaching how to combine the modified individual components such that the claim at issue, as a whole, is achieved. *MPEP* § 2141; *MPEP* § 2143. Each of these forgoing elements is further defined within the MPEP. *Id.*

This requirement has been explained recently by the Supreme Court in *KSR v. Teleflex*, 550 U.S. \_\_\_\_; 127 S. Ct. 1727 (2007) which noted that such a rejection requires "some articulated reasoning ... to support the legal conclusion of obviousness." As stated by the Court, obviousness can be established where "there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, **this analysis should be made explicit.**" (*Emphasis added*) See *In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006) ('[R]jections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.')." *KSR v. Teleflex*, 550 U.S. \_\_\_\_; 127 S. Ct. 1727 at 1741.

As further described by the Court "[A] **patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.** Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." *KSR v. Teleflex*, 550 U.S. \_\_\_\_; 127 S. Ct. 1727 at 1741.

#### **a) Interpreting a Claim at Issue**

With respect to interpreting a claim at issue, the MPEP directs that, during examination -- as opposed to subsequent to issue -- such claim be interpreted as broadly as the claim terms would reasonably allow when read by one skilled in the art with which

the claimed invention is most closely connected. In practice, this is achieved by giving each of the terms in the claim the "plain meaning" of the terms as such would be understood by those having ordinary skill in the art, and if portions of the claim have no "plain meaning" within the art, or are ambiguous as used in a claim, then the examiner is to consult the specification for clarification. *MPEP* § 2111.

**b) Definition of One or More Prior Art Reference  
Components Relevant to the Claim at Issue**

Once the claim at issue has been properly interpreted, the next step is the definition of one or more prior art reference components (*e.g.*, electrical, mechanical, or other components set forth in a prior art reference) relevant to the properly interpreted claim at issue. With respect to the definition of one or more prior art reference components relevant to the claim at issue, the MPEP defines three proper sources of such prior art reference components, with the further requirement that each such source must have been extant at the time of invention to be considered relevant. These three sources are as follows: patents as defined by 35 U.S.C. §102, printed publications as defined by 35 U.S.C. §102, and information (*e.g.*, scientific principles) deemed to be "well known in the art"<sup>6</sup> as defined under 35 U.S.C. §102. *MPEP* § 2141; *MPEP* § 2144.

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<sup>6</sup> The fact that information deemed to be "well known in the art" can serve as a proper source of prior art reference components seems to open the door to subjectivity, but such is not the case. As a remedy to this potential problem, *MPEP* § 2144.03 states that if an examiner asserts that his position is derived from and/or is supported by a teaching or suggestion that is alleged to have been "well known in the art," and that if an applicant traverses such an assertion (that something was "well known within the art"), the examiner must cite a reference in support of his or her position. The same MPEP section also states that when a rejection is based on facts within the personal knowledge of an examiner, the data should be stated as specifically as possible, and the facts must be supported, when called for by the applicant, by an affidavit from the examiner. Such an affidavit is subject to contradiction or explanation by the affidavits of the applicant and other persons. *Id.* Thus, all sources of prior art reference components must be objectively verifiable.

**c)      Ascertainment of Differences between Prior Art  
Reference Components and Claim at Issue; Teaching to  
Modify and/or Combine Prior Art Reference  
Components to Remedy Those Differences in Order to  
Achieve Recitations of Claim at Issue**

With one or more prior art components so defined and drawn from the proper prior art sources, the differences between the one or more prior art reference components and the elements of the claim at issue are to be ascertained. Thereafter, in order to establish a case of *prima facie* obviousness, an examiner must set forth a rationale, supported by objective evidence<sup>7</sup> sufficient to demonstrate under a preponderance of the evidence standard, that in the prior art extant at the time of invention there was a teaching to modify and/or combine the one or more prior art reference components to construct a device practicably equivalent to the claim at issue.

The preferable evidence relied upon is an express teaching to modify/combine within the properly defined objectively verifiable sources of prior art. In the absence of such express teaching, an examiner may attempt to establish a rationale to support a finding of such teaching reasoned from, or based upon, express teachings taken from the defined proper sources of such evidence (*i.e.*, properly defined objectively verifiable sources of prior art). *MPEP* § 2144; *In re Dembiczak*, 50 U.S.P.Q.2d 1614 (Fed. Cir. 1999).

The MPEP recognizes the pitfalls associated with the tendency to subconsciously use impermissible "hindsight" when an examiner attempts to establish such a rationale. The MPEP has set forth at least two rules to ensure against the likelihood of such impermissible use of hindsight. The first rule is that:

Under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information,<sup>8</sup> the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at

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<sup>7</sup> The proper sources of the objective evidence supporting the rationale are the defined proper sources of prior art reference components, discussed above, with the addition of factually similar legal precedent. *MPEP* § 2144.

<sup>8</sup> "Factual information" is information actually existing or occurring, as distinguished from mere supposition or opinion. *Black's Law Dictionary* 532 (5th ed. 1979).

that time to that person. Knowledge of an Applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search, and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon an Applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

*MPEP* § 2142 (emphasis added). Thus, if the only objective evidence of such teaching to modify and/or combine prior art reference components is an applicant's disclosure, no evidence of such teaching exists.<sup>9</sup>

The second rule is that if an examiner attempts to rely on some advantage or expected beneficial result that would have been produced by a modification and/or combination of the prior art reference components as evidence to support a rationale to establish such teachings to modify and/or combine prior art reference components, the *MPEP* requires that such advantage or expected beneficial result be objectively verifiable teachings present in the acceptable sources of prior art (or drawn from a convincing line of reasoning based on objectively verifiable established scientific principles or teachings). *MPEP* § 2144. Thus, as a guide to avoid the use of impermissible hindsight, these rules from the *MPEP* make clear that absent some objective evidence, sufficient to persuade under a preponderance of the evidence standard, no teaching of such modification and/or combination exists.<sup>10</sup>

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<sup>9</sup> An applicant may argue that an examiner's conclusion of obviousness is based on improper hindsight reasoning. However, "[a]ny judgment on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." *MPEP* § 2145(X)(A) (emphasis added).

<sup>10</sup> *In Re Sang Su Lee* 277 F.3d 1338 (Fed. Cir. 2002) ("When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness.") *See, e.g., McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d 1001, 1008 (Fed. Cir. 2001) ("the central question is whether there is reason to combine [the] references," a question of fact drawing on the *Graham* factors). "The factual inquiry whether to combine references must be thorough and searching." *Id.* It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with. *See, e.g., Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d 1456, 1459 (Fed. Cir. 2000) ("a showing of a suggestion, teaching, or motivation to combine the prior art references is an 'essential component of an obviousness holding'" (quoting *C.R. Bard, Inc., v. M3 Systems, Inc.*, 157 F.3d 1340, 1352, 48 U.S.P.Q.2d 1225, 1522 (Fed. Cir. 1998)); *In re Dembiczak*, 175 F.3d 994, 999,

**B. Technical Material Cited by Examiner (Mulgund and Bennett and Madden I) Does Not Show or Suggest the Text of Claims 1-5, 8, 9, 11-12, 14, 16, 19-21, 23, 25, 31-39, 42-46, 48, 50-53, 56-57, 59-60, 62, 64, 67-69, 71, 73, 79-87, 90-94, 96, 98-101, 104, 105, 108-112, 114-117, 119-122, 125-126, 129-131, 133, 135, 137-138, 140, 142, 144-147, 150-151, 154-156, 158, 160, 162-163, 165, 167, 169-172, 175, and 176 as Presented Herein; Notice of Allowance of Same Respectfully Requested**

**1. Claim 1**

Claim 1 recites:

1. A method comprising:
  - creating a plurality of first-administered content indexes for a first set of motes;
  - aggregating the plurality of first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote included within the first set of motes;
  - creating one or more second-administered content indexes for a second set of motes;
  - obtaining at least a part of the second-administered content indexes of the second set of motes; and
  - creating a federated index from the aggregated content index aggregated by the gateway mote and at least a part of the one or more second-administered content indexes.

As shown in the following, the technical material cited by the Examiner does not show or suggest the text of Claim 1. Accordingly, Applicant respectfully requests that The Board allow Claim 1 for the reasons set forth below.

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50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999) (“Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.”); *In re Dance*, 160 F.3d 1339, 1343, 48 U.S.P.Q.2d 1635, 1637 (Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); *In re Fine*, 837 F.2d 1071, 1075, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988) (“teachings of references can be combined only if there is some suggestion or incentive to do so.”) (emphasis in original) (quoting *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984)). The need for specificity pervades this authority. *See, e.g., In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000) (“particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed”); *In re Rouffet*, 149 F.3d 1350, 1359, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998) (“even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious.”)).

**a) Technical Material Cited by Examiner Does Not Show or Suggest the Text of Claim 1.**

As set forth above, Claim 1 recites:

1. A method comprising:
  - [a] creating a plurality of first-administered content indexes for a first set of notes;
  - [b] aggregating the plurality of first-administered content indexes of the first set of notes into an aggregated content index using a gateway note included within the first set of notes;
  - [c] creating one or more second-administered content indexes for a second set of notes;
  - [d] obtaining at least a part of the second-administered content indexes of the second set of notes; and
  - [e] creating a federated index from the aggregated content index aggregated by the gateway note and at least a part of the one or more second-administered content indexes. (emphasis added).<sup>11</sup>

With respect to claim 1, Examiner has stated,

“As to claim 1, Mulgund shows:

creating one or more first-administered content indexes for a first set of notes [building a database model by updating relational database logical design tables at each step of the discovering step, the model created comprised of an identity of each of the sensing nodes as well as any metadata about each node] (par. [0007], [0021]);

aggregating the plurality of first-administered content indexes of the first set of notes into an aggregated content index [retrieving the information stored at the node, the information including an identity of each of the sensing nodes as well as any meta data about each node (par. [0062]) wherein information is retrieved from a knowledge base (18) at a node (par. [0026] lines 11-17) and used to form a relational database (Fig. 3 and Fig. 4)] (abstract, par. [0005], [0025]);

creating one or more second-administered content indexes for a second set of notes [building a database model by updating relational database logical design tables at each step of the discovering step, the model created comprised of an identity of each of the sensing nodes as well as any metadata about each node of the set of nodes 2a the right side of Fig. 1] (par. [0007], [0021]);

obtaining at least a part of the one or more second-administered content indexes of the second set of notes [retrieving the information stored at the node, the information including an identity of each of the sensing nodes as well as any metadata about each node (par. [0062]) wherein information is

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<sup>11</sup> The lettering of the clauses herein is merely for sake of clarity of argument and should not be taken to imply any particular ordering of the clauses.

retrieved from a knowledge base (18) at a node (par. [0026] lines 11-17) and used to form a relational database (Fig. 3 and Fig. 4)).

Mulgund also shows creating a federated index from aggregated, content index and at least a part of the one or more second-administered content indexes Joint table containing metadata and identity of each sensing node] (abstract, par. [0005] and [0025], Fig. 3, Fig. 4) [Data Table List (30) that provides mapping between individual nodes and the names of the tables used to store those nodes' sensor data] (par. [0042], (Fig. 4).

Bennett also shows creating a federated index from the aggregated content index and at least a part of the one or more second-administered content indexes [creating a design document from a first and second tables, each table containing an index] (summary of the invention, Fig. 5A).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by creating a federated index from the aggregated content index and at least a part of the one or more second-administered content indexes, as taught by Bennett, in order to federate information from first and second indexes [tables containing metadata] into a relational database (abstract, in Bennett).

Mulgund in view of Bennett does not show that the aggregated index is aggregated using (by) a gateway mote included within the first set of motes.

Madden shows:

aggregating the plurality of first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote included within the first administered set of motes [the mote at the root of the routing tree (the mote that interacts directly with the base station)] (Fig. 1; section 3.1 par. 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund in view of Bennett by having the aggregated index being aggregated using (by) a gateway mote included within the first set of motes in order to lower the number of message transmissions, latency, and power consumption than the server-based approach of Mulgund ("TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al., section 4 under In-Network Aggregates)."

(Office Action mailed April 2, 2009, p. 6-9, section 8).

**(1) Examiner Citations With Regard to Clause [b] of Independent Claim 1:**

Applicant respectfully points out that Applicant has reviewed the portions of Mulgund identified by Examiner, and so far as Applicant can discern, Mulgund does not recite or suggest the text of clause [b] of Applicant's claim 1.

More specifically, the Examiner-cited portions of Mulgund recite:

[0005] The tools needed to implement the vision of seamless, global access to remote information are available only in part, and not yet as an integrated package. The Applicants describe below the development of an information architecture, which is referred to in certain embodiments as Intelmetric™, and a method of using the architecture which make it possible to aggregate, store, process, and distributed, real-time distributed sensor data into the enterprise, and make resulting information readily available over the Internet.

[0007] In another aspect, the present invention is a method of database modeling that makes it possible to create, store, and update a virtual model of a network of sensors within a relational database structure. The network modeling agent dynamically updates various sensor node data and link data that collectively define an instantaneous "state" of the sensor network into the database logical design. The network modeling agent thereby facilitates access, visualization, and the use of a stream of information generated by the network of distributed sensors. The sensor nodes to be interrogated by the network modeling agent are assumed to be uniquely addressable and in communication, using networking protocols, with one another through links and with a database server through one or more access points. A method according to the present invention comprises the steps of discovering and maintaining the distributed sensor network topology by applying at every access point a quasi-recursive algorithm, which causes the network modeling agent to visit a first sensor node and mark the first node visited, push the marked first node onto a stack, and while the stack is non-empty, query the node at the top of the stack for a list of current links to the node at the top, compare the list of current links to a list of historical links to the node at the top of the stack and update the historical link and historical node information, and if there are no unmarked nodes reachable from a current link then pop the stack, otherwise visit the next reachable unmarked node, mark the next node and push it onto the stack. The network modeling agent builds the database model by updating relational database logical design tables at each step of the discovering step. The agent maintains the database model by periodically reapplying the interrogating algorithm, thereby updating the database model to account for sensor node and link additions and deletions. The periodicity of updates is preferably such that a near real-time topology of the sensor network is maintained.

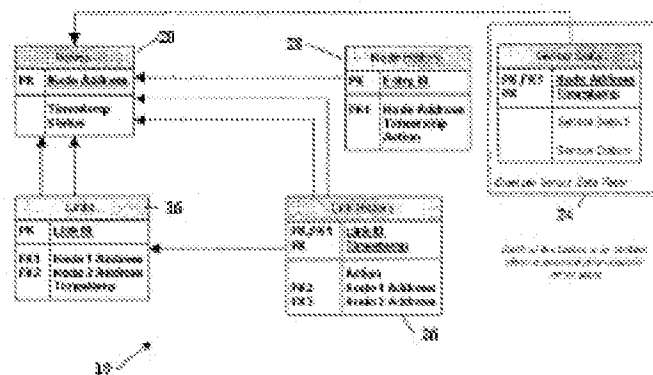
[0021] an identity (unique identifying information such as a numeric address) of each of the sensing nodes 2 in the network 4, as well as any metadata about each node;

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as



simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors 16 is stored locally in a well-defined knowledge base 18, but the output can be accessed from outside the network 4 through some software application programming interface (API) and hardware implementation. Each of the sensing nodes 2 is additionally in communication with one or more other sensing nodes through connecting links 3.

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.



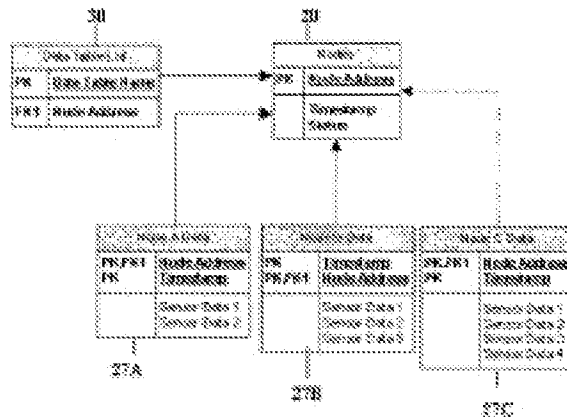


Figure 4

And the Examiner-cited portions of Bennett recite:

A system includes a relational database management system (RDBMS) having a data modeling component. A "data model" is a graphical representation of the relationship between tables one may use in a design document. "Design documents" allow a user to customize how his or her data are presented, including presenting information in formats which are not tabular and including formats which link together different tables (so that information stored in separate tables appears to the user to come from one place). Methods are described for automatically linking tables to be placed in a data model by comparing unique keys (e.g., primary key or other unique identifier) of one table with indexes (or indexable fields) of another table. Based upon the comparison, the system automatically suggests an appropriate link (if any) for the tables.

A system of the present invention includes a relational database management system (RDBMS), where information is maintained in one or more database tables for easy, efficient storage and retrieval. In addition to database tables, the system provides "design documents" which allow a user to customize how his or her data are presented, including formats which are not tabular. Design documents can also link together different tables, so that information stored in separate tables appears to the user to come from one place.

(Bennett, Abstract and Summary of the Invention).

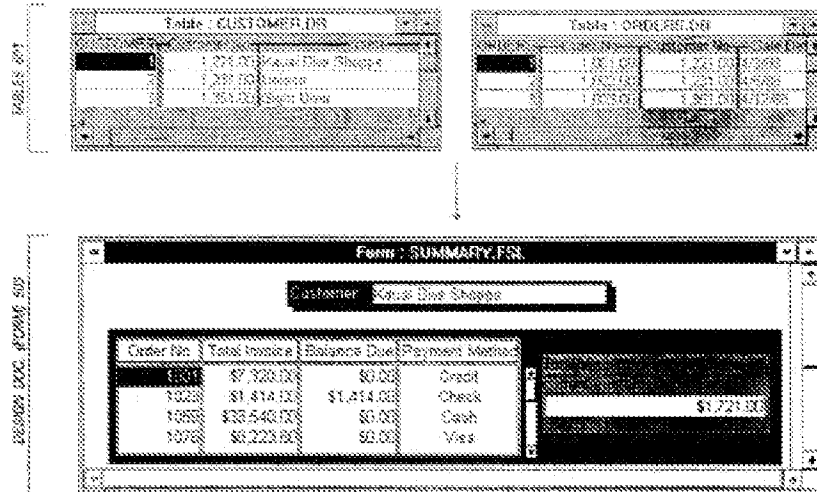
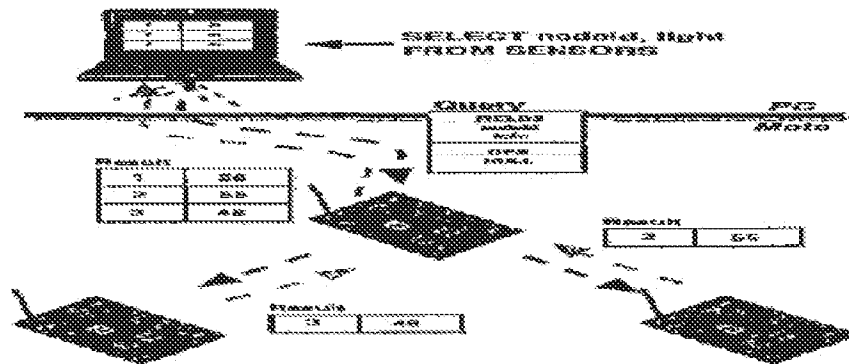


FIG. 54

And the Examiner-cited portions of Madden I recite:



Madden I, Fig. 1

This statement provides a shared, local (i.e. single-node) location to store a streaming view of recent data similar to materialization points in other streaming systems like Aurora or STREAM [7, 39], or materialized views in conventional databases. Joins are allowed between two storage points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival. This is effectively a landmark query [19] common in streaming systems. Consider, as an example:

```
SELECT COUNT (*)
FROM sensors AS s, recent Light AS rl
WHERE rl.nodeid = s.nodeid
AND s.light < rl.light
```

Madden I, Section 3.1 paragraph 4

Applicant respectfully submits that, as can be seen from the foregoing, Mulgund does not show or suggest the recitations of clause [b] of claim 1. In relevant part, Mulgund teaches “The process of visiting a node involves retrieving the information stored at the node, and updating the local database.” (Mulgund, par. [0062]). On the other hand, clause [b] recites “*aggregating the plurality of first-administered content indexes of the first set of notes into an aggregated content index using a gateway note included within the first set of notes*” (emphasis added). Because Mulgund fails to teach or suggest clause [b] of claim 1, claim 1 is allowable over Mulgund.

In view of the foregoing, and under the MPEP standards as set forth above, Applicant respectfully submits that claim 1 is in condition for allowance.

**(2) Examiner Citations With Regard to Clause [e]  
of Independent Claim 1:**

Similarly, Applicant respectfully points out that Applicant has reviewed the portions of Mulgund, Bennett and Madden I identified by Examiner, and so far as Applicant can discern, neither Mulgund, Bennett or Madden I shows or suggests the text of clause [e] of Applicant's claim 1. Clause [e] recites “*creating a federated index from the aggregated content index aggregated by the gateway note and at least a part of the one or more second-administered content indexes.*” (emphasis added).

Applicant respectfully submits that, as can be seen from the foregoing cited portions of Mulgund, Bennett and Madden I, neither Mulgund, Bennett nor Mulgund I shows or suggests the recitations of clause [e] of claim 1. In relevant part, Mulgund teaches “The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database” (Mulgund, par. [0062]), while Bennett teaches “Design documents can also link together different tables, so that information stored in separate tables appears to the user to come from one place.” (Bennett, Summary) and Madden I teaches “Joins are allowed between two storage

points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival”. (Madden I, Section 3.1, paragraph 4)

On the other hand, clause [e] recites “*creating a federated index from the aggregated content index aggregated by the gateway mote and at least a part of the one or more second-administered content indexes.*” (emphasis added). Because neither Mulgund or Bennett shows or suggests the recitations of clause [e] of claim 1, claim 1 is in condition for allowance for this additional reason.

Applicant respectfully notes: “[W]hat a reference teaches is a question of fact.” *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1358 (Fed. Cir. 2001) (referencing *In re Beattie*, 974 F.2d 1309, 1311 (Fed.Cir.1992)). See also *McGinley v. Franklin Sports*, 262 F.3d 1339, 1350 (Fed. Cir. 2001).

Applicant respectfully submits that there is NO PROFFERED EVIDENCE THAT WOULD SUPPORT A FINDING OF FACT that Mulgund describes or teaches the text of Clause [a] of Independent Claim 1. Under the guidelines from the *MPEP* and from the case law established by the Court of Appeals for the Federal Circuit, as set forth above, the cited art of record fails to suggest Independent Claim 1 for at least these reasons.

Applicant has shown by direct quotations that Independent Claim 1 and the Examiner-cited Mulgund, Bennett and Madden I reference are very different on their faces. See *supra* at p. 29-30 (quotation of Claim 1); at pp. 32–34 (quotation of Mulgund); at pp. 34-35 (quotation of Bennett); and at pp. 35-36 (quotation of Madden I). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the Examiner-cited art is very different from Claim 1, and Applicant has noted that Examiner has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the Examiner-cited technical material does not establish a *prima facie* case of the unpatentability of Claim 1 either under the *MPEP* or under controlling legal standards. See *supra* at pp. **Error! Bookmark not defined.-Error! Bookmark not defined..**

Accordingly, insofar as that Mulgund, Bennett and Madden I do not recite the text of at least Clause [b] and [e] of Applicant's Independent Claim 1, and insofar as that Examiner has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Mulgund, Bennett and Madden I could be modified/combined to teach at least Clauses [b] and [e] of Independent Claim 1, Applicant respectfully points out that under the MPEP guidelines as set forth above, the Examiner-cited technical material does not establish a *prima facie* case of the unpatentability of Independent Claim 1 for at least these reasons. Thus, Applicant respectfully asks The Board to hold Independent Claim 1 allowable and to issue a Notice of Allowability of same.

With respect to Examiner assertions regarding the teachings of Mulgund, Bennett, and Madden I, Applicant demonstrated above that the express recitations of Mulgund, Bennett, and Madden I are not as Examiner alleges, and that Examiner has provided no evidence—let alone the preponderance of the evidence required—to support Examiner assertions as to the factual conclusion as to what Mulgund, Bennett, and Madden I “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, Examiner has presented no evidence that Mulgund, Bennett, and Madden I teaches as asserted by Examiner. In addition, Applicant respectfully points out that even if Examiner's assertions regarding the teachings of Mulgund were supported, such would be of no moment in that Examiner has yet to connect the alleged teaching of Mulgund, Bennett, and Madden I to the actual express language of Applicant's Independent Claim 1. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that The Board hold Independent Claim 1 allowable and issue a Notice of Allowability of same.

2. **Dependent Claims 2--5, 8, 9, 11-12, 14, 16, 19-21, 23, 25, 31-39, 42-46, 48, 50-53, 56-57, 59-60, 62, 64, 67-69, 71, 73, 79-87, 90-94, 96, 98-101, 104 and 105: Patentable for at Least Reasons of Dependency from Claim 1.**

Claims 2-5, 8, 9, 11-12, 14, 16, 19-21, 23, 25, 31-39, 42-46, 48, 50-53, 56-57, 59-60, 62, 64, 67-69, 71, 73, 79-87, 90-94, 96, 98-101, 104 and 105 depend either directly or indirectly from claim 1. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." *See* 35 U.S.C. § 112 paragraph 4. Consequently, claims 2-5, 8, 9, 11-12, 14, 16, 19-21, 23, 25, 31-39, 42-46, 48, 50-53, 56-57, 59-60, 62, 64, 67-69, 71, 73, 79-87, 90-94, 96, 98-101, 104 and 105 are patentable for at least the reasons why claim 1 is patentable. Accordingly, Applicant respectfully requests that The Board hold dependent claims 2--5, 8, 9, 11-12, 14, 16, 19-21, 23, 25, 31-39, 42-46, 48, 50-53, 56-57, 59-60, 62, 64, 67-69, 71, 73, 79-87, 90-94, 96, 98-101, 104 and 105 patentable for at least the foregoing reasons, and issue a Notice of Allowance on same.

### **3. Claim 108**

As presented, Claim 108 recites:

108. A system comprising:  
means for creating a plurality of first-administered content indexes for a first set of notes;  
means for aggregating the plurality of first-administered content indexes of the first set of notes into an aggregated content index using a gateway note included within the first set of notes;  
means for creating one or more second-administered content indexes for a second set of notes;  
means for obtaining at least a part of the second-administered content indexes of the second set of notes; and  
means for creating a federated index from the aggregated content index aggregated by the gateway note and at least a part of the one or more second-administered content indexes, wherein at least one of the means for creating or the means for obtaining includes at least one of electrical circuitry for creating or electrical circuitry for obtaining.

As shown in the following, the technical material cited by the Examiner does not show or suggest the text of Claim 108. Accordingly, Applicant respectfully requests that The Board allow Claim 108 for the reasons set forth below.

**a) Technical Material Cited by Examiner Does Not Show or Suggest the Text of Claim 108.**

As set forth above, Claim 108 recites:

108. A system comprising:

[a] means for creating a plurality of first-administered content indexes for a first set of notes;

[b] *means for aggregating the plurality of first-administered content indexes of the first set of notes into an aggregated content index using a gateway note included within the first set of notes;*

[c] means for creating one or more second-administered content indexes for a second set of notes;

[d] means for obtaining at least a part of the second-administered content indexes of the second set of notes; and

[e] *means for creating a federated index from the aggregated content index aggregated by the gateway note and at least a part of the one or more second-administered content indexes, wherein at least one of the means for creating or the means for obtaining includes at least one of electrical circuitry for creating or electrical circuitry for obtaining.* (emphasis added).

With respect to claim 108, Examiner has stated,

“As to claim 108, Mulgund and, alternatively, Mulgund in view of Bennett shows all the elements, as discussed above with respect to claim 1.” (Office Action mailed June 4, 2008, sec. 15, p. 42).

**(1) Examiner Citations With Regard to Clause [b] of Independent Claim 108:**

Applicant respectfully points out that Applicant has reviewed the portions of Mulgund identified by Examiner, and so far as Applicant can discern, Mulgund does not recite or suggest the text of clause [b] of Applicant's claim 108.

More specifically, the Examiner-cited portions of Mulgund recite:

[0005] The tools needed to implement the vision of seamless, global access to remote information are available only in part, and not yet as an integrated package. The Applicants describe below the development of an information architecture, which is referred to in certain embodiments as Intelmetric™, and a method of using the architecture which make it possible to aggregate, store, process, and distributed, real-time distributed sensor data into the enterprise, and make resulting information readily available over the Internet.



[0007] In another aspect, the present invention is a method of database modeling that makes it possible to create, store, and update a virtual model of a network of sensors within a relational database structure. The network modeling agent dynamically updates various sensor node data and link data that collectively define an instantaneous "state" of the sensor network into the database logical design. The network modeling agent thereby facilitates access, visualization, and the use of a stream of information generated by the network of distributed sensors. The sensor nodes to be interrogated by the network modeling agent are assumed to be uniquely addressable and in communication, using networking protocols, with one another through links and with a database server through one or more access points. A method according to the present invention comprises the steps of discovering and maintaining the distributed sensor network topology by applying at every access point a quasi-recursive algorithm, which causes the network modeling agent to visit a first sensor node and mark the first node visited, push the marked first node onto a stack, and while the stack is non-empty, query the node at the top of the stack for a list of current links to the node at the top, compare the list of current links to a list of historical links to the node at the top of the stack and update the historical link and historical node information, and if there are no unmarked nodes reachable from a current link then pop the stack, otherwise visit the next reachable unmarked node, mark the next node and push it onto the stack. The network modeling agent builds the database model by updating relational database logical design tables at each step of the discovering step. The agent maintains the database model by periodically reapplying the interrogating algorithm, thereby updating the database model to account for sensor node and link additions and deletions. The periodicity of updates is preferably such that a near real-time topology of the sensor network is maintained.

[0021] an identity (unique identifying information such as a numeric address) of each of the sensing nodes 2 in the network 4, as well as any metadata about each node;

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors 16 is stored locally in a well-defined knowledge base 18, but the output can be accessed from outside the network 4 through some software application programming interface (API) and hardware implementation. Each of the sensing nodes 2 is additionally in communication with one or more other sensing nodes through connecting links 3.

[0042] In another embodiment, the database logical design 19 further comprises a Data Table List 30 that provides a mapping between individual nodes 2 and the names of the tables used to store those nodes' Sensor Data. Each of these tables is defined and created dynamically, based on the structure of the information at each node. FIG. 4 illustrates an embodiment of a network model logical design 19 for a three-node network configuration wherein each of the three nodes (A, B, C) provides a different amount of data. As such a network is traversed and the Nodes Table 20 is populated, an entry is made in the Data Table List Table 30 that identifies the name of the table associated with a given node. In the example illustrated, each node (A, B, C) has its own Node Data Table (27A-C). Each of Node Data Table is defined to accommodate the type of sensor data known to originate from that node. As discussed earlier, it is assumed that the software agent on the database server can interrogate the node to determine what type of information it provides, and then define the table structures accordingly.

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database. (Mulgund, par. [0005], [0007], [0021], [0026], [0042], and [0062]).

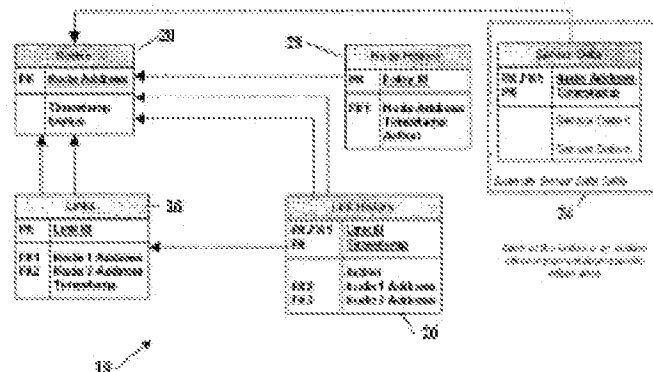


Figure 3

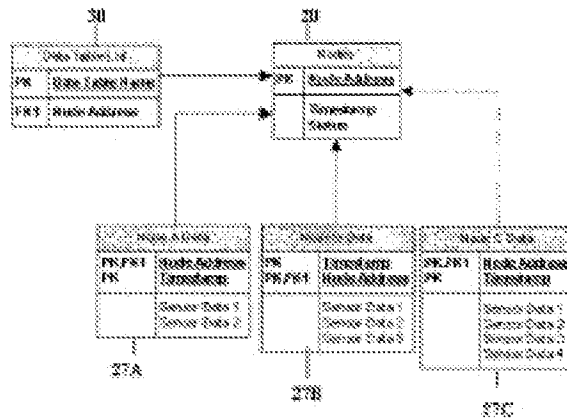


Figure 4

And the Examiner-cited portions of Bennett recite:

A system includes a relational database management system (RDBMS) having a data modeling component. A "data model" is a graphical representation of the relationship between tables one may use in a design document. "Design documents" allow a user to customize how his or her data are presented, including presenting information in formats which are not tabular and including formats which link together different tables (so that information stored in separate tables appears to the user to come from one place). Methods are described for automatically linking tables to be placed in a data model by comparing unique keys (e.g., primary key or other unique identifier) of one table with indexes (or indexable fields) of another table. Based upon the comparison, the system automatically suggests an appropriate link (if any) for the tables.

A system of the present invention includes a relational database management system (RDBMS), where information is maintained in one or more database tables for easy, efficient storage and retrieval. In addition to database tables, the system provides "design documents" which allow a user to customize how his or her data are presented, including formats which are not tabular. Design documents can also link together different tables, so that information stored in separate tables appears to the user to come from one place.

(Bennett, Abstract and Summary of the Invention).



Madden 1, Section 3.1 paragraph 4

Applicant respectfully submits that, as can be seen from the foregoing, Mulgund does not show or suggest the recitations of clause [b] of claim 108. In relevant part, Mulgund teaches “The process of visiting a node involves retrieving the information stored at the node, and updating the local database.” (Mulgund, par. [0062]). On the other hand, clause [b] recites “*means for aggregating the plurality of first-administered content indexes of the first set of notes into an aggregated content index using a gateway note included within the first set of notes*” (emphasis added). Because Mulgund fails to teach or suggest clause [b] of claim 108, claim 108 is allowable over Mulgund.

In view of the foregoing, and under the MPEP standards as set forth above, Applicant respectfully submits that claim 108 is in condition for allowance.

**(2) Examiner Citations With Regard to Clause [e]  
of Independent Claim 108:**

Similarly, Applicant respectfully points out that Applicant has reviewed the portions of Mulgund, Bennett and Madden I identified by Examiner, and so far as Applicant can discern, neither Mulgund, Bennett nor Madden I shows or suggests the text of clause [e] of Applicant's claim 108. Clause [e] recites “*means for creating a federated index from the aggregated content index aggregated by the gateway note and at least a part of the one or more second-administered content indexes.*” (emphasis added).

Applicant respectfully submits that, as can be seen from the foregoing cited portions of Mulgund, Bennett and Madden I, neither Mulgund, Bennett nor Mulgund I shows or suggests the recitations of clause [e] of claim 108. In relevant part, Mulgund teaches “The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database” (Mulgund, par. [0062]), while Bennett teaches “Design documents can also link together different tables, so that information stored in separate tables appears to the user to come from one place.” (Bennett, Summary) and Madden I teaches “Joins are allowed between

two storage points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival”. (Madden I, Section 3.1, paragraph 4).

On the other hand, clause [e] recites “*means for creating a federated index from the aggregated content index aggregated by the gateway mote and at least a part of the one or more second-administered content indexes.*” (emphasis added). Because neither Mulgund, Bennett nor Madden I shows or suggests the recitations of clause [e] of claim 108, claim 108 is in condition for allowance for this additional reason.

Applicant respectfully notes: “[W]hat a reference teaches is a question of fact.” *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1358 (Fed. Cir. 2001) (referencing *In re Beattie*, 974 F.2d 1309, 1311 (Fed.Cir.1992)). See also *McGinley v. Franklin Sports*, 262 F.3d 1339, 1350 (Fed. Cir. 2001).

Applicant respectfully submits that there is NO PROFFERED EVIDENCE THAT WOULD SUPPORT A FINDING OF FACT that Mulgund describes or teaches the text of Clause [a] of Independent Claim 108. Under the guidelines from the *MPEP* and from the case law established by the Court of Appeals for the Federal Circuit, as set forth above, the cited art of record fails to suggest Independent Claim 108 for at least these reasons.

Applicant has shown by direct quotations that Independent Claim 108 and the Examiner-cited Mulgund, Bennett and Madden I reference are very different on their faces. See *supra* at p. 39-40 (quotation of Claim 108); at pp. 40-43 (quotation of Mulgund); at pp. 43-44 (quotation of Bennett); and at p. 44 (quotation of Madden I). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the Examiner-cited art is very different from Claim 108, and Applicant has noted that Examiner has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the Examiner-cited technical material does not establish a *prima facie* case of the unpatentability of Claim 108 either under the MPEP or under controlling legal standards. See *supra* at pp. **Error! Bookmark not defined.-Error! Bookmark not defined..**

Accordingly, insofar as that Mulgund, Bennett and Madden I do not recite the text of at least Clause [b] and [e] of Applicant's Independent Claim 108, and insofar as that Examiner has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Mulgund, Bennett and Madden I could be modified/combined to teach at least Clauses [b] and [e] of Independent Claim 108, Applicant respectfully points out that under the MPEP guidelines as set forth above, the Examiner-cited technical material does not establish a *prima facie* case of the unpatentability of Independent Claim 108 for at least these reasons. Thus, Applicant respectfully asks The Board to hold Independent Claim 108 allowable and to issue a Notice of Allowability of same.

With respect to Examiner assertions regarding the teachings of Mulgund, Bennett, and Madden I, Applicant demonstrated above that the express recitations of Mulgund, Bennett, and Madden I are not as Examiner alleges, and that Examiner has provided no evidence—let alone the preponderance of the evidence required—to support Examiner assertions as to the factual conclusion as to what Mulgund, Bennett, and Madden I “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, Examiner has presented no evidence that Mulgund, Bennett, and Madden I teaches as asserted by Examiner. In addition, Applicant respectfully points out that even if Examiner's assertions regarding the teachings of Mulgund were supported, such would be of no moment in that Examiner has yet to connect the alleged teaching of Mulgund, Bennett, and Madden I to the actual express language of Applicant's Independent Claim 108. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that The Board hold Independent Claim 108 allowable and issue a Notice of Allowability of same.

**4. Dependent Claims 109-112, 114-117, 119-122, and 125-126:  
Patentable for at Least Reasons of Dependency from Claim  
108.**

Claims 109-112, 114-117, 119-122, and 125-126 depend either directly or indirectly from claim 108. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." *See* 35 U.S.C. § 112 paragraph 4. Consequently, claims 109-112, 114-117, 119-122, and 125-126 are patentable for at least the reasons why claim 108 is patentable. Accordingly, Applicant respectfully requests that The Board hold dependent claims 109-112, 114-117, 119-122, and 125-126 patentable for at least the foregoing reasons, and issue a Notice of Allowance on same.

## **5. Claim 129**

As presented, Claim 129 recites:

129. A method comprising:  
aggregating a plurality of first-administered content indexes from a first set of notes into an aggregated content index using an aggregating note from among the first set of notes;  
obtaining at least a part of a second-administered content index from a second set of notes; and  
creating a federated index from the aggregated content index from the aggregating note and at least a part of the second-administered content index.

As shown in the following, the technical material cited by the Examiner does not show or suggest the text of Claim 129. Accordingly, Applicant respectfully requests that The Board allow Claim 129 for the reasons set forth below.

### **a) Technical Material Cited by Examiner Does Not Show or Suggest the Text of Claim 129.**

As set forth above, Claim 129 recites:

129. A method comprising:  
[a] *aggregating a plurality of first-administered content indexes from a first set of notes into an aggregated content index using an aggregating note from among the first set of notes*;  
[b] obtaining at least a part of a second-administered content index from a second set of notes; and



[c] creating a federated index from *the aggregated content index from the aggregating mote* and at least a part of the second-administered content index. (emphasis added).

With respect to claim 129, Examiner has stated,

“As to claim 129, Mulgund shows:

aggregating a plurality of first-administered content indexes of the first set of motes [the set of nodes 2 at the left side of Fig. 1] into an aggregated content index [retrieving the information stored at the node, the information including an identity of each of the sensing nodes as well as any metadata about each node (par. [0062]) wherein information is retrieved from a knowledge base (18) at a node (par. [0026] lines 11-17) and used to form a relational database (Fig. 3 and Fig. 4)] (abstract, par. [0005], [0025]):

obtaining at least a part of a second-administered content index of a second set of motes [the set of nodes 2 at the right side of Fig. 1: retrieving the information stored at the node, the information including an identity of each of the sensing nodes as well as any metadata about each node (par. [0062]) wherein information is retrieved from a knowledge base (18) at a node (par. [0026] lines 11-17) and used to form a relational database (Fig. 3 and Fig. 4)]

Mulgund also shows creating a federated index from the aggregated content index and at least a part of the second-administered content index joint table containing metadata and identity of each sensing node] (abstract, paragraph [0005] and [0025], Fig. 3, Fig. 4) [Data Table List (30) that provides mapping between individual nodes and the names of the tables used to store those nodes' sensor data] (par. [0042], Fig. 4).

Bennett also shows creating a federated index from the aggregated content index and at least a part of the second-administered content index [creating a design document from a first and second tables, each table containing an index] (summary of the invention, Fig. 5A).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by creating a federated index from the aggregated content index and at least a part of the second-administered content index, as taught by Bennett, in order to federate information from first and second indexes [tables containing metadata] into a relational database (abstract, in Bennett).

Mulgund in view of Bennett does not show that the aggregated index is aggregated using (by) an aggregating mote from among the first set of motes.

Madden shows:

aggregating a plurality of first-administered content indexes from a first set of motes into an aggregated content index using an aggregating mote from among the first set of motes [the mote at the root of the routing tree (the mote that interacts directly with the base station)] (Fig. 1; section 3.1 par. 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund in view of Bennett by having the aggregated index being aggregated using (by) an aggregating mote

from among the first set of motes in order to lower the number of message transmissions, latency, and power consumption than the server-based approach of Mulgund ("TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al., section 4 under In-Network Aggregates)." (Office Action mailed April 2, 2009, p. 31-33).

**(1) Examiner Citations With Regard to Clause [a] of Independent Claim 129:**

Applicant respectfully points out that Applicant has reviewed the portions of Mulgund identified by Examiner, and so far as Applicant can discern, Mulgund does not recite or suggest the text of clause [a] of Applicant's claim 129.

More specifically, the Examiner-cited portions of Mulgund recite:

[Abstract] Method of and system for aggregating into a relational database model the state of an ad hoc network comprised of uniquely addressable distributed sensor nodes in communication using networking protocols with one another through links and to a database server through access points. A relational database logical design resident on the database server is dynamically updated with respect to the sensor network's current and historical topological information through the use of a traversal and interrogating network modeling agent. The distributed sensors nodes may be mobile, and may communicate by wired or wireless means through networking protocols such as the Internet.

[0005] The tools needed to implement the vision of seamless, global access to remote information are available only in part, and not yet as an integrated package. The Applicants describe below the development of an information architecture, which is referred to in certain embodiments as Intelmetric™, and a method of using the architecture which make it possible to aggregate, store, process, and distributed, real-time distributed sensor data into the enterprise, and make resulting information readily available over the Internet.

[0025] It is of no concern how this network topology came into being, how it is organized, what routing algorithms are used to pass messages from one node to the next, but rather, how to aggregate the information at each of the nodes into an off-network repository or network model database 12. The sensing nodes 2 may be mobile, and the interconnections may change over time. Furthermore, new nodes may join the network 4 at any time, and existing nodes may leave the network unexpectedly.

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more

sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors 16 is stored locally in a well-defined knowledge base 18, but the output can be accessed from outside the network 4 through some software application programming interface (API) and hardware implementation. Each of the sensing nodes 2 is additionally in communication with one or more other sensing nodes through connecting links 3.

[0042] In another embodiment, the database logical design 19 further comprises a Data Table List 30 that provides a mapping between individual nodes 2 and the names of the tables used to store those nodes' Sensor Data. Each of these tables is defined and created dynamically, based on the structure of the information at each node. FIG. 4 illustrates an embodiment of a network model logical design 19 for a three-node network configuration wherein each of the three nodes (A, B, C) provides a different amount of data. As such a network is traversed and the Nodes Table 20 is populated, an entry is made in the Data Table List Table 30 that identifies the name of the table associated with a given node. In the example illustrated, each node (A, B, C) has its own Node Data Table (27A-C). Each of Node Data Table is defined to accommodate the type of sensor data known to originate from that node. As discussed earlier, it is assumed that the software agent on the database server can interrogate the node to determine what type of information it provides, and then define the table structures accordingly.

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database. (Mulgund, Abstract, par. [0005], [0025], [0026], [0042] and [0062]).

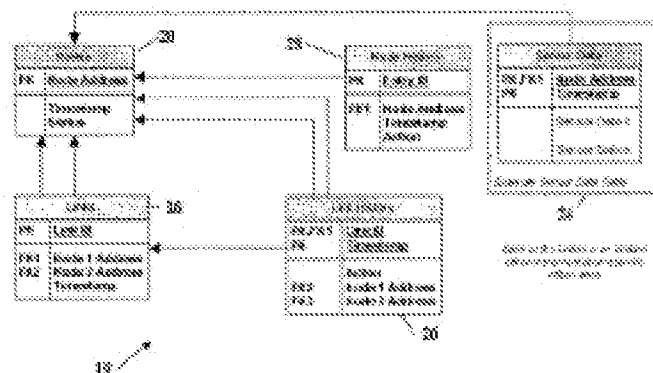


Figure 3

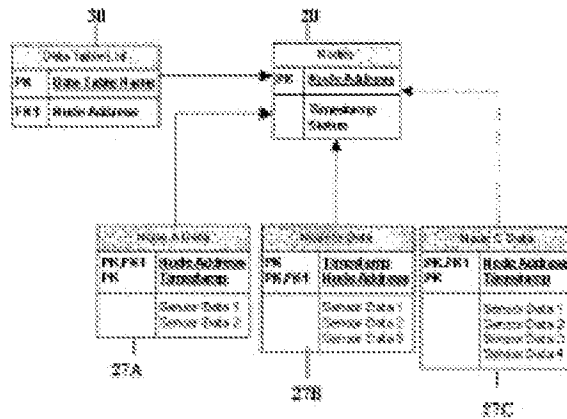


Figure 4

And the Examiner-cited portions of Bennett recite:

A system of the present invention includes a relational database management system (RDBMS), where information is maintained in one or more database tables for easy, efficient storage and retrieval. In addition to database tables, the system provides "design documents" which allow a user to customize how his or her data are presented, including formats which are not tabular. Design documents can also link together different tables, so that information stored in separate tables appears to the user to come from one place. (Bennett, Summary of the Invention).

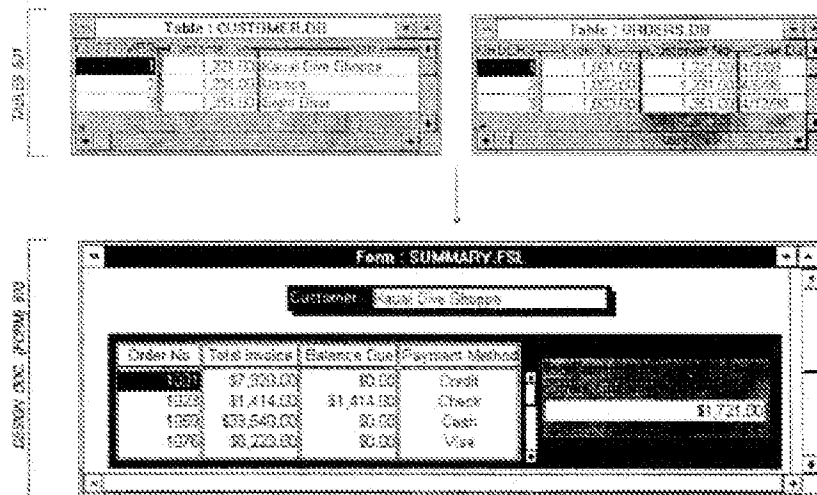
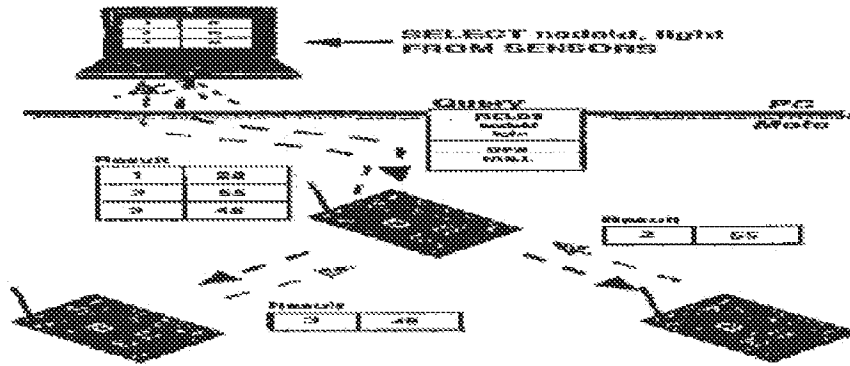


FIG. 5A

And the Examiner-cited portions of Madden I recite:



Madden I, Fig. 1

This statement provides a shared, local (i.e. single-node) location to store a streaming view of recent data similar to materialization points in other streaming systems like Aurora or STREAM [7, 39], or materialized views in conventional databases. Joins are allowed between two storage points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival. This is effectively a landmark query [19] common in streaming systems. Consider, as an example:

```
SELECT COUNT (*)
FROM sensors AS s, recent Light AS rl
WHERE rl.nodeid = s.nodeid
AND s.light < rl.light
```

Madden 1, Section 3.1 paragraph 4

Applicant respectfully submits that, as can be seen from the foregoing, Mulgund does not show or suggest the recitations of clause [a] of claim 129. In relevant part, Mulgund teaches “The process of visiting a node involves retrieving the information stored at the node, and updating the local database.” (Mulgund, par. [0062]). On the other hand, clause [a] recites “aggregating a plurality of *first-administered content indexes* from a first set of motes into *an aggregated content index using an aggregating mote from among the first set of motes*” (emphasis added). Because Mulgund fails to teach or suggest clause [a] of claim 129, claim 129 is allowable over Mulgund.

In view of the foregoing, and under the MPEP standards as set forth above, Applicant respectfully submits that claim 129 is in condition for allowance.

**(2) Examiner Citations With Regard to Clause [c]  
of Independent Claim 129:**

Similarly, Applicant respectfully points out that Applicant has reviewed the portions of Mulgund and Bennett identified by Examiner, and so far as Applicant can discern, neither Mulgund or Bennett shows or suggests the text of clause [c] of Applicant's claim 129. Clause [c] recites “creating a federated index from *the aggregated content index from the aggregating mote* and at least a part of the *second-administered content index*.” (emphasis added).

Applicant respectfully submits that, as can be seen from the foregoing cited portions of Mulgund, Bennett and Madden I, neither Mulgund, Bennett nor Madden I shows or suggests the recitations of clause [c] of claim 129. In relevant part, Mulgund teaches “The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database” (Mulgund, par. [0062]), while Bennett teaches “Design documents can also link together different tables, so that information stored in separate tables appears to the user to come from one place.” (Bennett, Summary) and Madden I teaches “Joins are allowed between two storage points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival”. (Madden I, Section 3.1, paragraph 4).

On the other hand, clause [c] recites “creating a federated index from *the aggregated content index from the aggregating mote* and at least a part of the *second-administered content index*.” (emphasis added). Because neither Mulgund, Bennett nor Madden I shows or suggests the recitations of clause [c] of claim 129, claim 129 is in condition for allowance for this additional reason.

Applicant respectfully notes: “[W]hat a reference teaches is a question of fact.” *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1358 (Fed. Cir. 2001) (referencing *In re Beattie*, 974 F.2d 1309, 1311 (Fed.Cir.1992)). See also *McGinley v. Franklin Sports*, 262 F.3d 1339, 1350 (Fed. Cir. 2001).

Applicant respectfully submits that there is NO PROFFERED EVIDENCE THAT WOULD SUPPORT A FINDING OF FACT that Mulgund describes or teaches the text of Clause [a] of Independent Claim 129. Under the guidelines from the *MPEP* and from the case law established by the Court of Appeals for the Federal Circuit, as set forth above, the cited art of record fails to suggest Independent Claim 129 for at least these reasons.

Applicant has shown by direct quotations that Independent Claim 129 and the Examiner-cited Mulgund, Bennett and Madden I reference are very different on their faces. *See supra* at p. 48-49 (quotation of Claim 129); at pp. 50–52 (quotation of Mulgund); at pp. 52-52 (quotation of Bennett); and at p. 52 (quotation of Madden I). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the Examiner-cited art is very different from Claim 129, and Applicant has noted that Examiner has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the Examiner-cited technical material does not a establish a *prima facie* case of the unpatentability of Claim 129 either under the MPEP or under controlling legal standards. *See supra* at pp. **Error! Bookmark not defined.-Error! Bookmark not defined..**

Accordingly, insofar as that Mulgund, Bennett and Madden I do not recite the text of at least Clause [a] and [c] of Applicant’s Independent Claim 129, and insofar as that Examiner has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Mulgund, Bennett and Madden I could be modified/combined to teach at least Clauses [a] and [c] of Independent Claim 129, Applicant respectfully points out that under the MPEP guidelines as set forth above, the Examiner-cited technical material does not a establish a *prima facie* case of the unpatentability of Independent Claim 129 for at least these reasons. Thus, Applicant respectfully asks The Board to hold Independent Claim 129 allowable and to issue a Notice of Allowability of same.

With respect to Examiner assertions regarding the teachings of Mulgund, Bennett, and Madden I, Applicant demonstrated above that the express recitations of

Mulgund, Bennett, and Madden I are not as Examiner alleges, and that Examiner has provided no evidence—let alone the preponderance of the evidence required—to support Examiner assertions as to the factual conclusion as to what Mulgund, Bennett, and Madden I “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, Examiner has presented no evidence that Mulgund, Bennett, and Madden I teaches as asserted by Examiner. In addition, Applicant respectfully points out that even if Examiner’s assertions regarding the teachings of Mulgund were supported, such would be of no moment in that Examiner has yet to connect the alleged teaching of Mulgund, Bennett, and Madden I to the actual express language of Applicant’s Independent Claim 129. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that The Board hold Independent Claim 129 allowable and issue a Notice of Allowability of same.

**6. Dependent Claims 130-131, 133, 135, 137-138, 140, 142, 144-147, and 150-151: Patentable for at Least Reasons of Dependency from Claim 129.**

Claims 130-131, 133, 135, 137-138, 140, 142, 144-147, and 150-151 depend either directly or indirectly from claim 129. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." *See* 35 U.S.C. § 112 paragraph 4. Consequently, claims 130-131, 133, 135, 137-138, 140, 142, 144-147, and 150-151 are patentable for at least the reasons why claim 129 is patentable. Accordingly, Applicant respectfully requests that Examiner hold dependent claims 130-131, 133, 135, 137-138, 140, 142, 144-147, and 150-151 patentable for at least the foregoing reasons, and issue a Notice of Allowance on same.

**7. Claim 154**

As amended, Claim 154 recites:

154. A system comprising:



means for aggregating a plurality of a first-administered content index from a first set of votes into an aggregated content index using an aggregating vote from among the first set of votes;

means for receiving at least a part of a second-administered content index from a second set of votes; and

means for creating a federated index from the aggregated content index from the aggregating vote and at least a part of the second-administered content index, wherein at least one of the means for creating or the means for obtaining includes at least one of electric circuitry for obtaining or electric circuitry for creating.

As shown in the following, the technical material cited by the Examiner does not show or suggest the text of Claim 154. Accordingly, Applicant respectfully requests that The Board allow Claim 154 for the reasons set forth below.

**a) Technical Material Cited by Examiner Does Not Show or Suggest the Text of Claim 154.**

As set forth above, Claim 154 recites:

154. A system comprising:

[a] *means for aggregating a plurality of a first-administered content index from a first set of votes into an aggregated content index using an aggregating vote from among the first set of votes;*

[b] means for receiving at least a part of a second-administered content index from a second set of votes; and

[c] means for creating a federated index from *the aggregated content index from the aggregating vote* and at least a part of the *second-administered content index*, wherein at least one of the means for obtaining or the means for creating includes at least one electrical circuitry for creating or electrical circuitry for obtaining. (emphasis added).

With respect to claim 154, Examiner has stated,

“As to claim 154, Mulgund in view of Bennett shows all the elements, as discussed above with respect to claim 129.”  
(Office Action mailed April 2, 2009, p. 35).

**(1) Examiner Citations With Regard to Clause [a] of Independent Claim 154:**

Applicant respectfully points out that Applicant has reviewed the portions of Mulgund identified by Examiner, and so far as Applicant can discern, Mulgund does not recite or suggest the text of clause [a] of Applicant's claim 154.

More specifically, the Examiner-cited portions of Mulgund recite:

[Abstract] Method of and system for aggregating into a relational database model the state of an ad hoc network comprised of uniquely addressable distributed sensor nodes in communication using networking protocols with one another through links and to a database server through access points. A relational database logical design resident on the database server is dynamically updated with respect to the sensor network's current and historical topological information through the use of a traversal and interrogating network modeling agent. The distributed sensors nodes may be mobile, and may communicate by wired or wireless means through networking protocols such as the Internet.

[0005] The tools needed to implement the vision of seamless, global access to remote information are available only in part, and not yet as an integrated package. The Applicants describe below the development of an information architecture, which is referred to in certain embodiments as Intelmetric™, and a method of using the architecture which make it possible to aggregate, store, process, and distributed, real-time distributed sensor data into the enterprise, and make resulting information readily available over the Internet.

[0025] It is of no concern how this network topology came into being, how it is organized, what routing algorithms are used to pass messages from one node to the next, but rather, how to aggregate the information at each of the nodes into an off-network repository or network model database 12. The sensing nodes 2 may be mobile, and the interconnections may change over time. Furthermore, new nodes may join the network 4 at any time, and existing nodes may leave the network unexpectedly.

[0026] FIG. 2 illustrates the nature of each of the sensing nodes 2, which comprise computational devices (possibly ranging in complexity from small embedded platforms to a fully-fledged PCs) that have one or more sensors 16 providing high-value information connected to it. The term sensor is used here in a general sense. A sensor 16 as contemplated herein could be as simple as an instrument that measures temperature, pressure, or any such other physical quantity. It could also be a device as complex as a video camera providing continuous full-motion imagery of some area of interest. In any case, the output of each of these sensors 16 is stored locally in a well-defined knowledge base 18, but the output can be accessed from outside the network 4 through some software application programming interface (API) and hardware implementation. Each of the sensing nodes 2 is additionally in communication with one or more other sensing nodes through connecting links 3.

[0042] In another embodiment, the database logical design 19 further comprises a Data Table List 30 that provides a mapping between individual nodes 2 and the names of the tables used to store those nodes' Sensor Data. Each of these tables is defined and created dynamically, based on the structure of the information at each node. FIG. 4 illustrates an embodiment of a network model logical design 19 for a three-node network configuration wherein each of the three nodes (A, B, C) provides a different amount of data. As such a network is traversed and the Nodes Table 20 is populated, an entry is made in the Data Table List Table 30 that identifies the name of the table associated with a given node. In the example illustrated, each node (A, B, C) has its own Node Data Table (27A-C). Each of Node Data Table is defined to accommodate the type of sensor data known to originate from that node. As discussed earlier, it is assumed that the software agent on the database server can interrogate the node to determine what type of information it provides, and then define the table structures accordingly.

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database. (Mulgund, par. [0026] and [0062]).

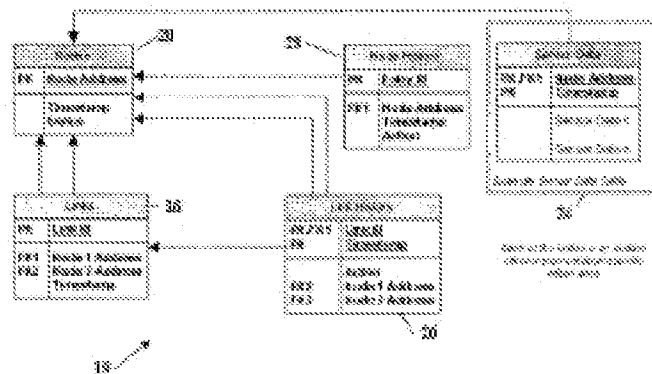


Figure 3

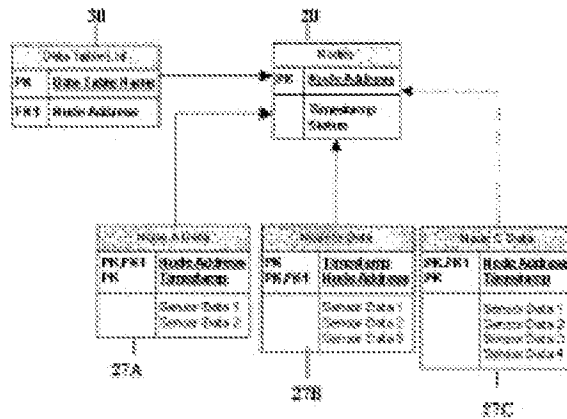


Figure 4

And the Examiner-cited portions of Bennett recite:

A system of the present invention includes a relational database management system (RDBMS), where information is maintained in one or more database tables for easy, efficient storage and retrieval. In addition to database tables, the system provides "design documents" which allow a user to customize how his or her data are presented, including formats which are not tabular. Design documents can also link together different tables, so that information stored in separate tables appears to the user to come from one place. (Bennett, Summary of the Invention).

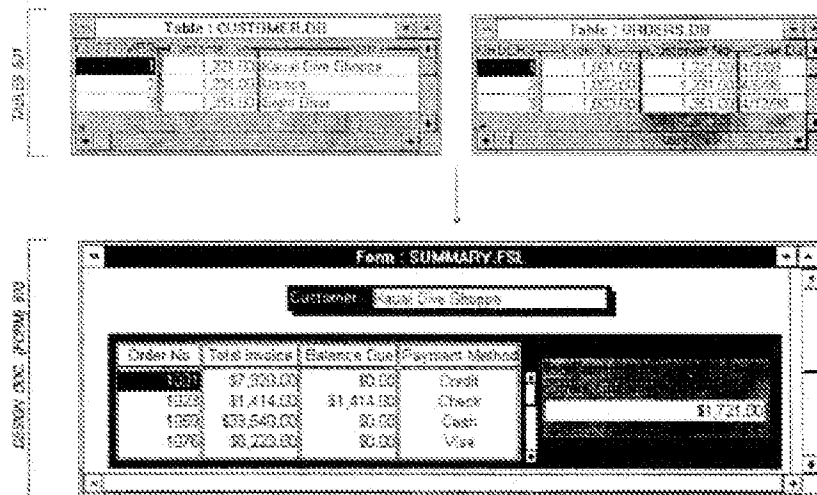
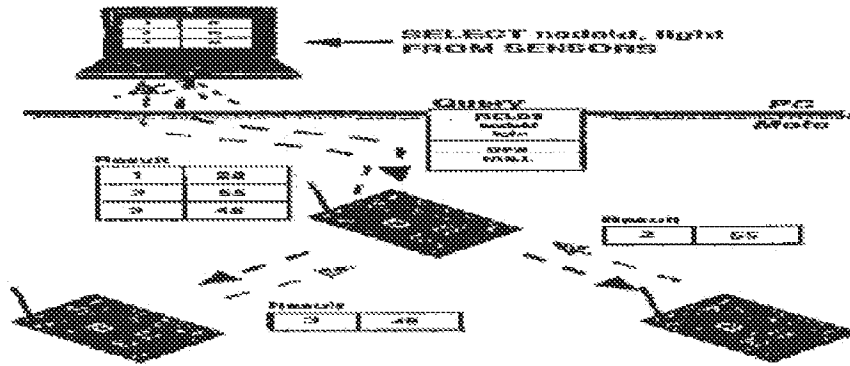


FIG. 5A

And the Examiner-cited portions of Madden I recite:



Madden I, Fig. 1

This statement provides a shared, local (i.e. single-node) location to store a streaming view of recent data similar to materialization points in other streaming systems like Aurora or STREAM [7, 39], or materialized views in conventional databases. Joins are allowed between two storage points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival. This is effectively a landmark query [19] common in streaming systems. Consider, as an example:

```
SELECT COUNT (*)
FROM sensors AS s, recent Light AS rl
WHERE rl.nodeid = s.nodeid
AND s.light < rl.light
```

Madden 1, Section 3.1 paragraph 4

Applicant respectfully submits that, as can be seen from the foregoing, Mulgund does not show or suggest the recitations of clause [a] of claim 154. In relevant part, Mulgund teaches “The process of visiting a node involves retrieving the information stored at the node, and updating the local database.” (Mulgund, par. [0062]). On the other hand, clause [a] recites “*means for aggregating a plurality of first-administered content indexes from a first set of notes into an aggregated content index using an aggregating mote from among the first set of notes*” (emphasis added). Because Mulgund fails to teach or suggest clause [a] of claim 154, claim 154 is allowable over Mulgund.

In view of the foregoing, and under the MPEP standards as set forth above, Applicant respectfully submits that claim 154 is in condition for allowance.

**(2) Examiner Citations With Regard to Clause [c]  
of Independent Claim 154:**

Similarly, Applicant respectfully points out that Applicant has reviewed the portions of Mulgund and Bennett identified by Examiner, and so far as Applicant can discern, neither Mulgund or Bennett shows or suggests the text of clause [c] of Applicant's claim 154. Clause [c] recites “means for creating a federated index from *the aggregated content index from the aggregating mote* and at least a part of the *second-administered content index*.” (emphasis added).

Applicant respectfully submits that, as can be seen from the foregoing cited portions of Mulgund, Bennett and Madden I, neither Mulgund, Bennett nor Madden I shows or suggests the recitations of clause [c] of claim 154. In relevant part, Mulgund teaches “The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database” (Mulgund, par. [0062]), while Bennett teaches “Design documents can also link together different tables, so that information stored in separate tables appears to the user to come from one place.” (Bennett, Summary) and Madden I teaches “Joins are allowed between two storage points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival”. (Madden I, Section 3.1, paragraph 4).

On the other hand, clause [c] recites “means for creating a federated index from *the aggregated content index from the aggregating mote* and at least a part of the *second-administered content index*.” (emphasis added). Because neither Mulgund, Bennett nor Madden I shows or suggests the recitations of clause [c] of claim 154, claim 154 is in condition for allowance for this additional reason.

Applicant respectfully notes: “[W]hat a reference teaches is a question of fact.” *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1358 (Fed. Cir. 2001) (referencing *In re Beattie*, 974 F.2d 1309, 1311 (Fed.Cir.1992)). See also *McGinley v. Franklin Sports*, 262 F.3d 1339, 1350 (Fed. Cir. 2001).

Applicant respectfully submits that there is NO PROFFERED EVIDENCE THAT WOULD SUPPORT A FINDING OF FACT that Mulgund describes or teaches the text of Clause [a] of Independent Claim 154. Under the guidelines from the *MPEP* and from the case law established by the Court of Appeals for the Federal Circuit, as set forth above, the cited art of record fails to suggest Independent Claim 154 for at least these reasons.

Applicant has shown by direct quotations that Independent Claim 154 and the Examiner-cited Mulgund, Bennett and Madden I reference are very different on their faces. *See supra* at p. 56-82 (quotation of Claim 154); at pp. 58–60 (quotation of Mulgund); at pp. 60 (quotation of Bennett); and at p. 61 (quotation of Madden I). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the Examiner-cited art is very different from Claim 154, and Applicant has noted that Examiner has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the Examiner-cited technical material does not a establish a *prima facie* case of the unpatentability of Claim 154 either under the MPEP or under controlling legal standards. *See supra* at pp. **Error! Bookmark not defined.-Error! Bookmark not defined..**

Accordingly, insofar as that Mulgund, Bennett and Madden I do not recite the text of at least Clause [a] and [c] of Applicant’s Independent Claim 154, and insofar as that Examiner has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Mulgund, Bennett and Madden I could be modified/combined to teach at least Clauses [a] and [c] of Independent Claim 154, Applicant respectfully points out that under the MPEP guidelines as set forth above, the Examiner-cited technical material does not a establish a *prima facie* case of the unpatentability of Independent Claim 154 for at least these reasons. Thus, Applicant respectfully asks The Board to hold Independent Claim 154 allowable and to issue a Notice of Allowability of same.

With respect to Examiner assertions regarding the teachings of Mulgund, Bennett, and Madden I, Applicant demonstrated above that the express recitations of

Mulgund, Bennett, and Madden I are not as Examiner alleges, and that Examiner has provided no evidence—let alone the preponderance of the evidence required—to support Examiner assertions as to the factual conclusion as to what Mulgund, Bennett, and Madden I “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, Examiner has presented no evidence that Mulgund, Bennett, and Madden I teaches as asserted by Examiner. In addition, Applicant respectfully points out that even if Examiner’s assertions regarding the teachings of Mulgund were supported, such would be of no moment in that Examiner has yet to connect the alleged teaching of Mulgund, Bennett, and Madden I to the actual express language of Applicant’s Independent Claim 154. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that The Board hold Independent Claim 154 allowable and issue a Notice of Allowability of same.

**8. Dependent Claims 155-156, 158, 160, 162-163, 165, 167, 169-172, 175, and 176: Patentable for at Least Reasons of Dependency from Claim 154.**

Claims 155-156, 158, 160, 162-163, 165, 167, 169-172, 175, and 176 depend either directly or indirectly from claim 154. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." *See* 35 U.S.C. § 112 paragraph 4. Consequently, claims 155-156, 158, 160, 162-163, 165, 167, 169-172, 175, and 176 are patentable for at least the reasons why claim 154 is patentable. Accordingly, Applicant respectfully requests that The Board hold dependent claims 155-156, 158, 160, 162-163, 165, 167, 169-172, 175, and 176 patentable for at least the foregoing reasons, and issue a Notice of Allowance on same.



**C. Technical Material Cited by Examiner (Madden I and Mulgund)  
Do Not Show or Suggest the Text of Claims 179 and 180 as Presented  
Herein; Notice of Allowance of Same Respectfully Requested**

**1. Claim 179**

As presented, Claim 179 recites:

179. A system comprising:  
at least one computational system having electrical circuitry and  
being operably coupled with a first-administered set of motes and a  
separately administered second-administered set of motes;  
at least one gateway mote included within at least one of the first-  
administered set of motes or the second-administered set of motes, the at  
least one gateway mote including a multi-mote index creation agent  
configured to  
receive a plurality of content indexes from a corresponding  
plurality of motes of the at least one of the first-administered set of  
motes or the second-administered set of motes, and  
aggregate the plurality of content indexes into at least one  
aggregated index associated with the at least one of the first-  
administered set of motes or the second-administered set of motes,  
respectively; and  
at least one federated index creation agent resident in the  
computational system, said at least one federated index creation agent  
configured to receive the at least one aggregated index, and to create a  
federated index that includes the at least one aggregated index.

As shown in the following, the technical material cited by the Examiner does  
not show or suggest the text of Claim 179. Accordingly, Applicant respectfully  
requests that The Board allow Claim 179.

**a) Technical Material Cited by Examiner Does Not  
Show or Suggest the Text of Claim 179.**

As set forth above, Claim 179 recites:

179. A system comprising:  
[a] at least one computational system having electrical circuitry  
and being operably coupled with a first-administered set of motes and a  
separately administered second-administered set of motes;  
[b] *at least one gateway mote included within at least one of the  
first-administered set of motes or the second-administered set of motes, the*

*at least one gateway mote including a multi-mote index creation agent configured to*

*receive a plurality of content indexes from a corresponding plurality of motes of the at least one of the first-administered set of motes or the second-administered set of motes, and*

*aggregate the plurality of content indexes into at least one aggregated index associated with the at least one of the first-administered set of motes or the second-administered set of motes, respectively; and*

*[c] at least one federated index creation agent resident in the computational system, said at least one federated index creation agent configured to receive the at least one aggregated index, and to create a federated index that includes the at least one aggregated index. (emphasis added).*

With respect to claim 179, Examiner has stated,

“As to claim 179, Madden shows:

at least one computational system having electrical circuitry and being operably coupled with a first-administered set of motes [a powered PC (the base station) (Fig. 1);

at least one gateway mote included within at least one of the first-administered set of motes or the second-administered set of motes [the mote at the root of the routing tree (the mote that interacts directly with the base station) (Fig. 1), the at least one gateway mote including a multi-mote index creation agent [a TinyDB, which is a distributed query processor that runs on each of the motes in a sensor network (section 1 Introduction, par. 4) configured to:

receive a plurality of content indexes from a corresponding plurality of motes of the at least one of the first-administered set of motes or the second-administered set of motes (Fig. 1; section 3.1 par. 3-4), and aggregate the plurality of content indexes into at least one aggregated index associated with the at least one of the first-administered set of motes or the second-administered set of motes, respectively (Fig. 1; section 3.1 par. 4).

Madden further shows the computational system configured to receive the at least one aggregated index (Fig. 1).

However, Madden does not show at least one federated index creation agent resident in the computational system, said at least one federated index creation agent configured to receive the at least one aggregated index, and to create a federated index that includes the at least one aggregated index.

Mulgund shows:

at least computational system having electrical circuitry [database server (10)] and being operably coupled with a first-administered set of motes [set of nodes 2 at the left side of Fig. 1] and a second-administered set of motes [set of nodes 2 at the right side of Fig. 1];

at least one gateway access point (6) (Fig. 1) included within at least one of the first-administered set of motes or the second-administered set of motes (Fig. 1); and

at least one federated index creation agent resident in the computational system [network modeling agent (14)] (Fig. 1), said at least one federated index creation agent configured to receive at least one index [retrieving the information stored at the node] (par. [0062]), and to create a federated index that includes the received index [Data Table List (30) that provides mapping between individual nodes and the names of the tables used to store those nodes' sensor data] (par. [0042], Fig. 4).

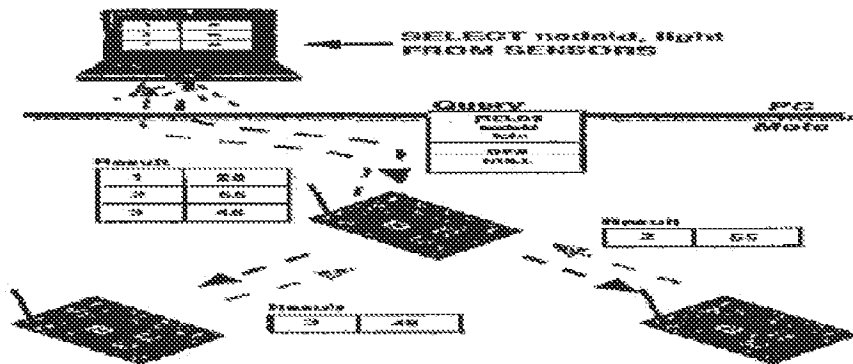
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Madden by having at least one federated index creation agent resident in the computational system, said at least one federated index creation agent configured to receive the at least one aggregated index, and to create a federated index that includes the at least one aggregated index in order to aggregate the information at each of the nodes into an off-network repository or network model database (par. [0025] in Mulgund).”

Office Action mailed April 2, 2009 (pp. 64-65, sec. 16).

**(1) Examiner Citations With Regard to Clause [b] of Independent Claim 179:**

Applicant respectfully points out that Applicant has reviewed the portions of Madden I identified by Examiner, and so far as Applicant can discern, Madden does not recite or suggest the text of clause [b] of Applicant's claim 179.

More specifically, the Examiner-cited portions of Madden recites:



Madden I, Fig. 1

This statement provides a shared, local (i.e. single-node) location to store a streaming view of recent data similar to materialization points in

other streaming systems like Aurora or STREAM [7, 39], or materialized views in conventional databases. Joins are allowed between two storage points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival. This is effectively a landmark query [19] common in streaming systems. Consider, as an example:

```
SELECT COUNT (*)  
FROM sensors AS s, recent Light AS rl  
WHERE rl.nodeid = s.nodeid  
AND s.light < rl.light
```

Madden 1, Section 3.1 paragraph 4

And the Examiner-cited portions of Mulgund recite:

[0025] It is of no concern how this network topology came into being, how it is organized, what routing algorithms are used to pass messages from one node to the next, but rather, how to aggregate the information at each of the nodes into an off-network repository or network model database 12. The sensing nodes 2 may be mobile, and the interconnections may change over time. Furthermore, new nodes may join the network 4 at any time, and existing nodes may leave the network unexpectedly.

[0042] In another embodiment, the database logical design 19 further comprises a Data Table List 30 that provides a mapping between individual nodes 2 and the names of the tables used to store those nodes' Sensor Data. Each of these tables is defined and created dynamically, based on the structure of the information at each node. FIG. 4 illustrates an embodiment of a network model logical design 19 for a three-node network configuration wherein each of the three nodes (A, B, C) provides a different amount of data. As such a network is traversed and the Nodes Table 20 is populated, an entry is made in the Data Table List Table 30 that identifies the name of the table associated with a given node. In the example illustrated, each node (A, B, C) has its own Node Data Table (27A-C). Each of Node Data Table is defined to accommodate the type of sensor data known to originate from that node. As discussed earlier, it is assumed that the software agent on the database server can interrogate the node to determine what type of information it provides, and then define the table structures accordingly.

[0062] The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database.

(Mulgund, par. [0026] and [0062]).

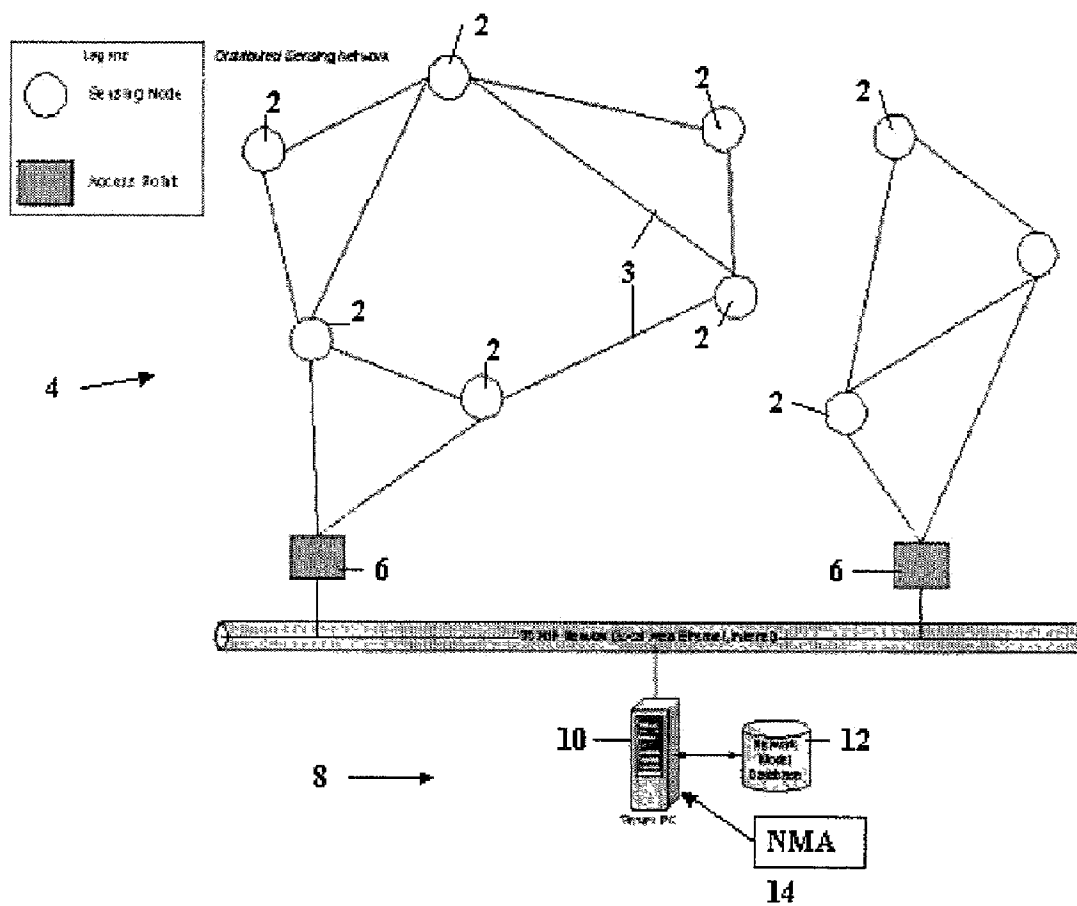


Figure 1

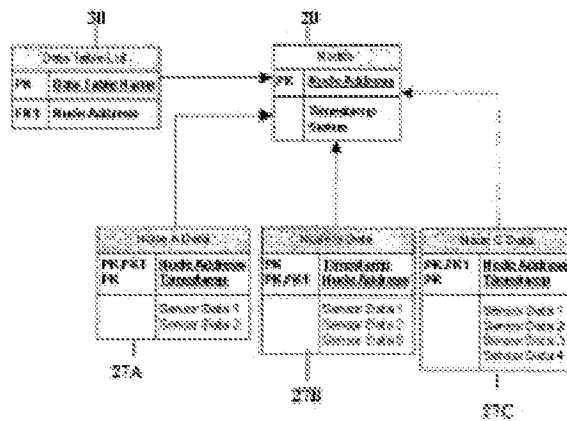


Figure 4

Mulgund Figs. 1 & 4

Applicant respectfully submits that, as can be seen from the foregoing, Madden 1 does not show or suggest the recitations of clause [b] of claim 179. In relevant part, Madden 1 teaches “Joins are allowed between two storage points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival.” (Madden, Section 3.1 paragraph 4). On the other hand, clause [b] recites “*at least one gateway mote included within at least one of the first-administered set of motes or the second-administered set of motes, the at least one gateway mote including a multi-mote index creation agent configured to receive a plurality of content indexes from a corresponding plurality of motes of the at least one of the first-administered set of motes or the second-administered set of motes, and aggregate the plurality of content indexes into at least one aggregated index associated with the at least one of the first-administered set of motes or the second-administered set of motes, respectively;*” (emphasis added). Because Madden I fails to teach or suggest clause [b] of claim 179, claim 179 is allowable over Madden I.

In view of the foregoing, and under the MPEP standards as set forth above, Applicant respectfully submits that claim 179 is in condition for allowance.

**(2) Examiner Citations With Regard to Clause [c]  
of Independent Claim 179:**

Similarly, Applicant respectfully points out that Applicant has reviewed the portions of Madden and Mulgund identified by Examiner, and so far as Applicant can discern, Madden and Mulgund do not recite or suggest the text of clause [c] of Applicant's claim 179. Clause [c] recites “at least one federated index creation agent resident in the computational system, said at least one federated index creation agent configured to *receive the at least one aggregated index*, and to *create a federated index that includes the at least one aggregated index.*” (emphasis added).

Applicant respectfully submits that, as can be seen from the foregoing cited portions of Madden and Mulgund, neither Madden nor Mulgund shows or suggests the recitations of clause [c] of claim 179. In relevant part, Madden I teaches “Joins are allowed between two storage points on the same node, or between a storage point

and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival”, and Mulgund teaches “The traversal process begins at node A 32. Node A 32 is visited and pushed onto the stack. The process of visiting a node involves retrieving the information stored at the node, and updating the local database” (Mulgund, par. [0062])

On the other hand, clause [c] recites “at least one federated index creation agent resident in the computational system, said at least one federated index creation agent configured to *receive the at least one aggregated index*, and to *create a federated index that includes the at least one aggregated index*.” (emphasis added). Because neither Madden I nor Mulgund shows or suggests the recitations of clause [c] of claim 179, claim 179 is allowable over Madden I and Mulgund for this additional reason.

Applicant respectfully notes: “[W]hat a reference teaches is a question of fact.” *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1358 (Fed. Cir. 2001) (referencing *In re Beattie*, 974 F.2d 1309, 1311 (Fed.Cir.1992)). See also *McGinley v. Franklin Sports*, 262 F.3d 1339, 1350 (Fed. Cir. 2001).

Applicant respectfully submits that there is NO PROFFERED EVIDENCE THAT WOULD SUPPORT A FINDING OF FACT that Mulgund describes or teaches the text of Clause [a] of Independent Claim 179. Under the guidelines from the *MPEP* and from the case law established by the Court of Appeals for the Federal Circuit, as set forth above, the cited art of record fails to suggest Independent Claim 179 for at least these reasons.

Applicant has shown by direct quotations that Independent Claim 179 and the Examiner-cited Mulgund and Madden I reference are very different on their faces. See *supra* at p. 65-66 (quotation of Claim 179); at pp. 68-69 (quotation of Mulgund); and at p. 67 (quotation of Madden I). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the Examiner-cited art is very different from Claim 179, and Applicant has noted that Examiner has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the Examiner-cited technical material

does not establish a *prima facie* case of the unpatentability of Claim 179 either under the MPEP or under controlling legal standards. *See supra* at pp. **Error! Bookmark not defined.**

Accordingly, insofar as that Mulgund and Madden I do not recite the text of at least Clause [a] and [c] of Applicant's Independent Claim 179, and insofar as that Examiner has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Mulgund and Madden I could be modified/combined to teach at least Clauses [a] and [c] of Independent Claim 179, Applicant respectfully points out that under the MPEP guidelines as set forth above, the Examiner-cited technical material does not establish a *prima facie* case of the unpatentability of Independent Claim 179 for at least these reasons. Thus, Applicant respectfully asks The Board to hold Independent Claim 179 allowable and to issue a Notice of Allowability of same.

With respect to Examiner assertions regarding the teachings of Mulgund and Madden I, Applicant demonstrated above that the express recitations of Mulgund and Madden I are not as Examiner alleges, and that Examiner has provided no evidence—let alone the preponderance of the evidence required—to support Examiner assertions as to the factual conclusion as to what Mulgund, and Madden I “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, Examiner has presented no evidence that Mulgund, and Madden I teaches as asserted by Examiner. In addition, Applicant respectfully points out that even if Examiner's assertions regarding the teachings of Madden I were supported, such would be of no moment in that Examiner has yet to connect the alleged teaching of Mulgund, and Madden I to the actual express language of Applicant's Independent Claim 179. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that The Board hold Independent Claim 179 allowable and issue a Notice of Allowability of same.

## **2. Claim 180**



As presented, Claim 180 recites:

180. A system comprising:  
at least one computational system having electrical circuitry and being operably coupled with a first-administered set of motes and a second-administered set of motes;  
at least one gateway mote included within at least one of the first-administered set of motes or the second-administered set of motes, the at least one gateway mote including a multi-mote index creation agent configured to  
receive a plurality of content indexes from a corresponding plurality of motes of the at least one of the first-administered set of motes or the second-administered set of motes, and  
aggregate the plurality of content indexes into at least one aggregated index associated with the at least one of the first-administered set of motes or the second-administered set of motes, respectively; and  
at least one federated index resident in the computational system, said at least one at least one federated index configured to contain the at least one aggregated index.

As shown in the following, the technical material cited by the Examiner does not show or suggest the text of Claim 180. Accordingly, Applicant respectfully requests that The Board allow Claim 180.

**a) Technical Material Cited by Examiner Does Not Show or Suggest the Text of Claim 180.**

As set forth above, Claim 180 recites:

180. A system comprising:  
[a] at least one computational system having electrical circuitry and being operably coupled with a first-administered set of motes and a second-administered set of motes;  
[b] at least one gateway mote included within at least one of the first-administered set of motes or the second-administered set of motes, the at least one gateway mote including a multi-mote index creation agent configured to  
[i] receive a plurality of content indexes from a corresponding plurality of motes of the at least one of the first-administered set of motes or the second-administered set of motes, and  
[ii] *aggregate the plurality of content indexes into at least one aggregated index associated with the at least one of the first-administered set of motes or the second-administered set of motes, respectively*; and

[c] at least one federated index resident in the computational system, *said at least one at least one federated index configured to contain the at least one aggregated index.* (emphasis added).

With respect to claim 180, Examiner has stated,

“As to claim 180, Madden shows:

at least one computational system having electrical circuitry and being operably coupled with a first-administered set of motes [a powered PC (the base station)] (Fig. 1);

at least one gateway mote included within at least one of the first-administered set of motes or the second-administered set of motes [the mote at the root of the routing tree (the mote that interacts directly with the base station) (Fig. 1), the at least one gateway mote including a multi-mote index creation agent [a TinyOS, which is a distributed query processor that runs on each of the motes in a sensor network (section 1 Introduction, par. 4) configured to:

receive a plurality of content indexes from a corresponding plurality of motes of the at least one of the first-administered set of motes or the second-administered set of motes (Fig. 1; section 3.1 par. 3-4), and

aggregate the plurality of content indexes into at least one aggregated index associated with the at least one of the first-administered set of motes or the second administered set of motes, respectively (Fig. 1; section 3.1 par. 4).

Madden further shows the computational system configured to receive the at least one aggregated index (Fig. 1).

However, Madden does not show at least one federated index resident in the computational system, *said at least one federated index configured to contain the at least one aggregated index.*

Mulgund shows: at least computational system having electrical circuitry [database server (10)) and being operably coupled with a first-administered set of motes [set of nodes 2 at the left side of Fig. 1] and a second-administered set of motes [set of nodes 2 at the right side of Fig. 1];

at least one gateway access point (6) (Fig. 1) included within at least one of the first-administered set of motes or the second-administered set of motes (Fig. 1); and

at least one federated index [Data Table List (30) that provides mapping between individual nodes and the names of the tables used to store those nodes' sensor data) (par. [0042], Fig. 4) resident in the computational system, *said at least one federated index configured to contain at least one received index (par. [0021]-[0024]).*

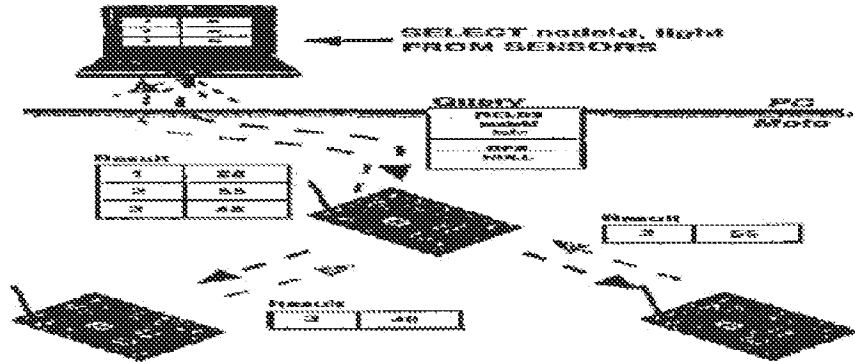
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Madden by having at least one federated index resident in the computational system, *said at least one federated index configured to contain the at least one aggregated index in order to aggregate the information at each of the nodes into an off-network repository or network model database (par. [0025] in Mulgund)."*

Office Action mailed April 2, 2009, pp. 66-67, sec. 16).

**(1) Examiner Citations With Regard to Clause [b][ii] of Independent Claim 180:**

Applicant respectfully points out that Applicant has reviewed the portions of Madden I or Mulgund identified by Examiner, and so far as Applicant can discern, Madden I and Mulgund do not recite or suggest the text of clause [b][ii] of Applicant's claim 180.

More specifically, the Examiner-cited portions of Madden recites:



Madden I, Fig. 1

We have designed and implemented an ACQP engine, called TinyDB (for more information on TinyDB, see [35]), which is a distributed query processor that runs on each of the nodes in a sensor network. TinyDB runs on the Berkeley Mica mote platform, on top of the TinyOS [23] operating system. We chose this platform because the hardware is readily available from commercial sources [13] and the operating system is relatively mature. TinyDB has many of the features of a traditional query processor (e.g. the ability to select, join, project, and aggregate data), but, as we will discuss in this paper, also incorporates a number of other features designed to minimize power consumption via acquisitional techniques. These techniques, taken in aggregate, can lead to orders of magnitude improvement in power consumption and increased accuracy of query results over non-acquisitional systems that do not actively control when and where data is collected.

This query specifies that each sensor should report its own id, light, and temperature readings (contained in the virtual table sensors) once per second for 10 seconds. Results of this query stream to the root of the network in an online fashion, via the multi-hop topology, where they may be logged or output to the user. The output consists of a sequence of tuples, clustered into 1 s time intervals. Each tuple includes a time stamp corresponding to the time it was produced.

Note that the sensors table is (conceptually) an unbounded, continuous data stream of values; as is the case in other streaming and online systems, certain blocking operations (such as sort and symmetric

join) are not allowed over such streams unless a bounded subset of the stream, or window, is specified. Windows in TinyDB are defined as fixed-size materialization points over the sensor streams. Such materialization points accumulate a small buffer of data that may be used in other queries. Consider, as an example:

```
CREATE STORAGE POINT recentlight SIZE 8
AS (SELECT nodeid, light ,FROM sensors
SAMPLE INTERVAL 10s)
```

This statement provides a shared, local (i.e. single-node) location to store a streaming view of recent data similar to materialization points in other streaming systems like Aurora or STREAM [7, 39], or materialized views in conventional databases. Joins are allowed between two storage points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival. This is effectively a landmark query [19] common in streaming systems. Consider, as an example:

```
SELECT COUNT (*)
FROM sensors AS s, recent Light AS rl
WHERE rl.nodeid = s.nodeid
AND s.light < rl.light
```

Madden 1, Section 1 Introduction, par. 4, Section 3.1 paragraphs 3-4

The Examiner-cited portions of Mulgund recites:

[0021] an identity (unique identifying information such as a numeric address) of each of the sensing nodes 2 in the network 4, as well as any metadata about each node;

[0022] a connectivity of each of the sensing nodes 2; i.e., a structural representation of the network topology that could be used to reconstruct a diagram such as FIG. 1;

[0023] an up-to-date information content at each of the sensing nodes 2; i.e., a real-time snapshot and time-history of the data of interest generated at each node location by an attached suite of sensors 16, as depicted in FIG. 2; and

[0024] a history of the network 4 from the moment the model was first constructed, which would allow a reconstruction of the network's state at any time in the past.

[0025] It is of no concern how this network topology came into being, how it is organized, what routing algorithms are used to pass messages from one node to the next, but rather, how to aggregate the information at each of the nodes into an off-network repository or network model database 12. The sensing nodes 2 may be mobile, and the interconnections may change over time. Furthermore, new nodes may join the network 4 at any time, and existing nodes may leave the network unexpectedly.

[0042] In another embodiment, the database logical design 19 further comprises a Data Table List 30 that provides a mapping between individual nodes 2 and the names of the tables used to store those nodes' Sensor Data. Each of these tables is defined and created dynamically, based on the structure of the information at each node. FIG. 4 illustrates an embodiment of a network model logical design 19 for a three-node network configuration wherein each of the three nodes (A, B, C) provides a different amount of data. As such a network is traversed and the Nodes Table 20 is populated, an entry is made in the Data Table List Table 30 that identifies the name of the table associated with a given node. In the example illustrated, each node (A, B, C) has its own Node Data Table (27A-C). Each of Node Data Table is defined to accommodate the type of sensor data known to originate from that node. As discussed earlier, it is assumed that the software agent on the database server can interrogate the node to determine what type of information it provides, and then define the table structures accordingly.

(Mulgund, par. [0021]-[0025] and [0042]).

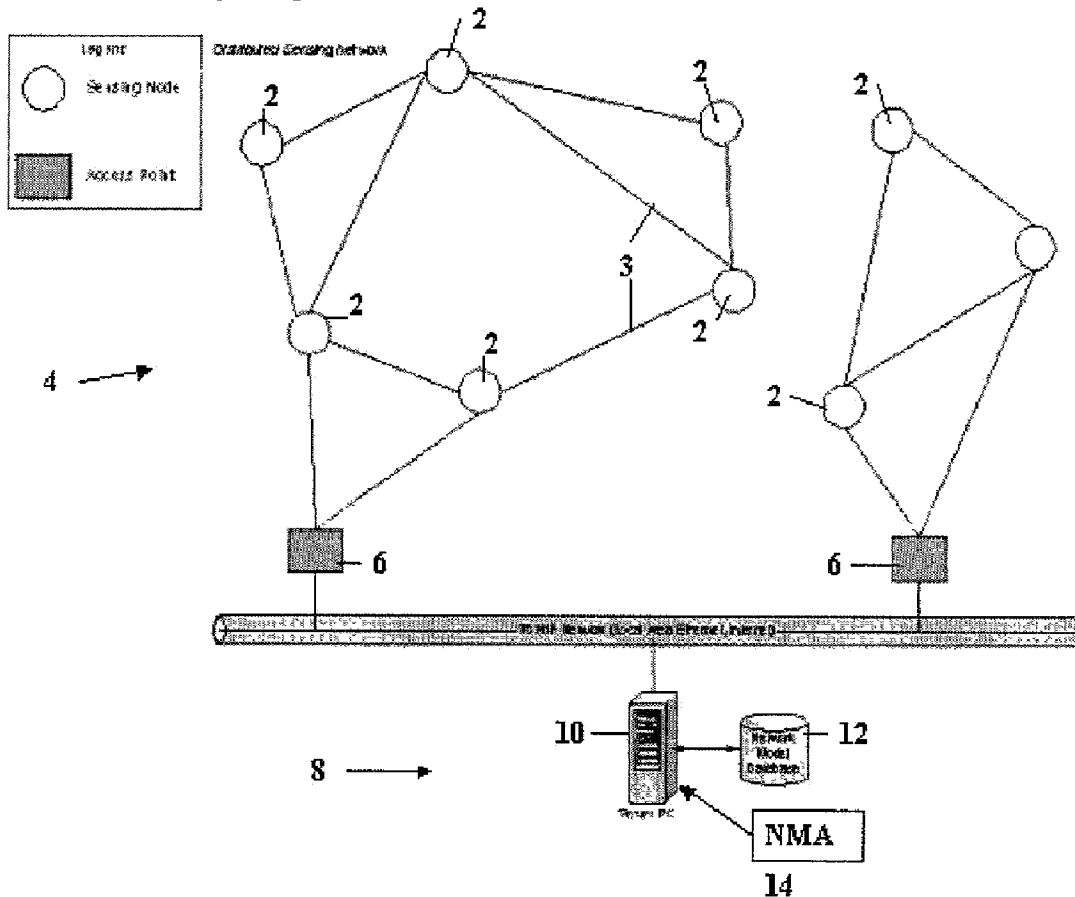


Figure 1

Mulgund Fig. 1

Applicant respectfully submits that, as can be seen from the foregoing, Madden I does not show or suggest the recitations of clause [b] [ii] of claim 180. In relevant part, Madden I teaches “Joins are allowed between two storage points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival.” (Madden, Section 3.1 Par. 4). On the other hand, clause [b] [ii] recites “*aggregate the plurality of content indexes into at least one aggregated index associated with the first-administered set of motes and the separately administered second-administered set of motes, respectively*” (emphasis added). Because Madden I fails to teach or suggest clause [b] [ii] of claim 180, claim 180 is allowable over Madden I.

In view of the foregoing, and under the MPEP standards as set forth above, Applicant respectfully submits that claim 180 is in condition for allowance.

**(2) Examiner Citations With Regard to Clause [c]  
of Independent Claim 180:**

Similarly, Applicant respectfully points out that Applicant has reviewed the portions of Madden and Mulgund identified by Examiner, and so far as Applicant can discern, Madden and Mulgund do not recite or suggest the text of clause [c] of Applicant's claim 180. Clause [c] recites “at least one federated index resident in the computational system, *said at least one at least one federated index configured to contain the at least one aggregated index.*” (emphasis added).

Applicant respectfully submits that, as can be seen from the foregoing cited portions of Madden and Mulgund, neither Madden nor Mulgund shows or suggests the recitations of clause [c] of claim 180. In relevant part, Madden I teaches “Joins are allowed between two storage points on the same node, or between a storage point and the sensors relation, in which case sensors is used as the outer relation in a nested loops join. That is, when a sensors tuple arrives, it is joined with tuples in the storage point at its time of arrival”, and Mulgund teaches “As such a network is traversed and the Nodes Table 20 is populated, an entry is made in the Data Table List Table 30 that identifies the name of the table associated with a given node. In the example illustrated, each node (A, B, C) has its own Node Data Table (27A-C). Each of Node

Data Table is defined to accommodate the type of sensor data known to originate from that node” (Mulgund, par. [0042])

On the other hand, clause [c] recites “at least one federated index creation agent resident in the computational system, said *at least one federated index creation agent configured to receive the at least one aggregated index.*” (emphasis added). Because neither Madden I nor Mulgund shows or suggests the recitations of clause [c] of claim 180, claim 180 is allowable over Madden I and Mulgund for this additional reason.

Applicant respectfully notes: “[W]hat a reference teaches is a question of fact.” *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1358 (Fed. Cir. 2001) (referencing *In re Beattie*, 974 F.2d 1309, 1311 (Fed.Cir.1992)). See also *McGinley v. Franklin Sports*, 262 F.3d 1339, 1350 (Fed. Cir. 2001).

Applicant respectfully submits that there is NO PROFFERED EVIDENCE THAT WOULD SUPPORT A FINDING OF FACT that Mulgund describes or teaches the text of Clause [a] of Independent Claim 180. Under the guidelines from the *MPEP* and from the case law established by the Court of Appeals for the Federal Circuit, as set forth above, the cited art of record fails to suggest Independent Claim 180 for at least these reasons.

Applicant has shown by direct quotations that Independent Claim 180 and the Examiner-cited Mulgund and Madden I reference are very different on their faces. See *supra* at p. 73-74 (quotation of Claim 180); at pp. 76-77 (quotation of Mulgund); and at p. 75 (quotation of Madden I). Insofar that Applicant has shown that “*at first sight; on the first appearance; on the face of it; so far as can be judged from the first disclosure*” the Examiner-cited art is very different from Claim 180, and Applicant has noted that Examiner has not cited to any objectively verifiable evidence/argument based on same sufficient to remedy such *prima facie* differences, the Examiner-cited technical material does not establish a *prima facie* case of the unpatentability of Claim 180 either under the MPEP or under controlling legal standards. See *supra* at pp. **Error! Bookmark not defined.-Error! Bookmark not defined.**

Accordingly, insofar as that Mulgund and Madden I do not recite the text of at least Clause [b][ii] and [c] of Applicant’s Independent Claim 180, and insofar as that

Examiner has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Mulgund and Madden I could be modified/combined to teach at least Clauses [b][ii] and [c] of Independent Claim 180, Applicant respectfully points out that under the MPEP guidelines as set forth above, the Examiner-cited technical material does not establish a *prima facie* case of the unpatentability of Independent Claim 180 for at least these reasons. Thus, Applicant respectfully asks The Board to hold Independent Claim 180 allowable and to issue a Notice of Allowability of same.

With respect to Examiner assertions regarding the teachings of Mulgund and Madden I, Applicant demonstrated above that the express recitations of Mulgund and Madden I are not as Examiner alleges, and that Examiner has provided no evidence—let alone the preponderance of the evidence required—to support Examiner assertions as to the factual conclusion as to what Mulgund, and Madden I “teaches.” Accordingly, Applicant respectfully points out that in view of the foregoing, Examiner has presented no evidence that Mulgund, and Madden I teaches as asserted by Examiner. In addition, Applicant respectfully points out that even if Examiner’s assertions regarding the teachings of Madden I were supported, such would be of no moment in that Examiner has yet to connect the alleged teaching of Mulgund, and Madden I to the actual express language of Applicant’s Independent Claim 180. Under the MPEP guidelines as set forth above, the cited art of record fails to establish a *prima facie* case of unpatentability for at least these reasons. Accordingly, for at least the foregoing reasons, Applicant respectfully requests that The Board hold Independent Claim 180 allowable and issue a Notice of Allowability of same.

**D. Technical Material Cited by Examiner (Mulgund and Bennett and Chiloyan) Does Not Show or Suggest the Text of Dependent Claims 6-7 and 54-55: Patentable for at Least Reasons of Dependency from Claim 1.**

Claims 6-7 and 54-55 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Chiloyan.



Claims 6-7 and 54-55 depend either directly or indirectly from claim 1. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." *See* 35 U.S.C. § 112 paragraph 4. Consequently, claims 6-7 and 54-55 are patentable for at least the reasons why claim 1 is patentable. Accordingly, Applicant respectfully requests that The Board hold dependent claims 6-7 and 54-55 patentable for at least the foregoing reasons, and issue a Notice of Allowance on same.

**E. Technical Material Cited by Examiner (Mulgund, Bennett, Madden I and Kung) Does Not Show or Suggest the Text of Dependent Claims 10, 13, 15, 17-18, 22, 24, 40-41, 49, 58, 61, 63, 65-66, 70, 72, 88-89, 97, 113, 118, 132, 134, 136, 139, 141, 143, 157, 159, 161, 164, 166, and 168: Patentable because of rejection based on improper 103(a) reference.**

Claims 10, 13, 15, 17-18, 22, 24, 40-41, 49, 58, 61, 63, 65-66, 70, 72, 88-89, 97, 113, 118, 132, 134, 136, 139, 141, 143, 157, 159, 161, 164, 166, and 168 which are dependent either directly or indirectly on claims 1, 108, 129, or 154, were rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Kung (US 2005/0021724). (Emphasis added)

Section 103(a) of the patent statutes states "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this section, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." *See* 35 U.S.C. § 103(a).

A review of the Kung reference shows that it was filed on June 18, 2004, which is after the filing date of the Applicants application (March 31, 2004). Although Kung claims the benefit of an earlier filed provisional application ("Kung Provisional"), applicant is unable to locate the exact portions of the Kung reference, which the office used in rejected the aforementioned claims, in the provisional application.

Applicant respectfully notes: “[W]hat a reference teaches is a question of fact.” *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1358 (Fed. Cir. 2001) (referencing *In re Beattie*, 974 F.2d 1309, 1311 (Fed.Cir.1992)). See also *McGinley v. Franklin Sports*, 262 F.3d 1339, 1350 (Fed. Cir. 2001).

Applicant respectfully submits that there is NO PROFFERED EVIDENCE THAT WOULD SUPPORT A FINDING OF FACT that Kung Provisional describes or teaches the text of claims 10, 13, 15, 17-18, 22, 24, 40-41, 49, 58, 61, 63, 65-66, 70, 72, 88-89, 97, 113, 118, 132, 134, 136, 139, 141, 143, 157, 159, 161, 164, 166, and 168. Under the guidelines from the *MPEP* and from the case law established by the Court of Appeals for the Federal Circuit, as set forth above, the cited art of record fails to suggest claims 10, 13, 15, 17-18, 22, 24, 40-41, 49, 58, 61, 63, 65-66, 70, 72, 88-89, 97 for at least these reasons. In addition under patent law and the guidelines from the *MPEP*, applicant submits that a provisional application (including the Kung Provisional) is also not a proper 102/103 reference. Thus applicant submits that Kung is an improper 102 reference and thus the office has presented an improper 103 rejection.

Accordingly, Applicant respectfully requests that The Board hold dependent claims 10, 13, 15, 17-18, 22, 24, 40-41, 49, 58, 61, 63, 65-66, 70, 72, 88-89, 97, 113, 118, 132, 134, 136, 139, 141, 143, 157, 159, 161, 164, 166, and 168 patentable for at least the foregoing reasons, and issue a Notice of Allowance on same

**F. Technical Material Cited by Examiner (Mulgund, Bennett, Madden I and Chiloyan) Does Not Show or Suggest the Text of Dependent Claims 26 and 74: Patentable for at Least Reasons of Dependency from Claim 1.**

Claims 26 and 74 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Madden I, and further in view of Chiloyan.

Claims 6-7 and 54-55 depend either directly or indirectly from claim 1. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." See 35 U.S.C. § 112 paragraph 4. Consequently, claims 26 and 74 are patentable for at least the reasons why claim 1

is patentable. Accordingly, Applicant respectfully requests that The Board hold dependent claims 26 and 74 patentable for at least the foregoing reasons, and issue a Notice of Allowance on same.

**G. Technical Material Cited by Examiner (Mulgund, Bennett, Madden I and Godlewski) Does Not Show or Suggest the Text of Dependent Claims 27-30 and 75-78: Patentable for at Least Reasons of Dependency from Claim 1.**

Claims 27-30 and 75-78 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Madden I, and further in view of Godlewski.

Claims 27-30 and 75-78 depend either directly or indirectly from claim 1. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." *See* 35 U.S.C. § 112 paragraph 4. Consequently, claims 27-30 and 75-78 are patentable for at least the reasons why claim 1 is patentable. Accordingly, Applicant respectfully requests that The Board hold dependent claims 27-30 and 75-78 patentable for at least the foregoing reasons, and issue a Notice of Allowance on same.

**H. Technical Material Cited by Examiner (Mulgund, Bennett, and Regli) Does Not Show or Suggest the Text of Dependent Claims 47 and 95: Patentable for at Least Reasons of Dependency from Claim 1.**

Claims 47 and 95 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, and further in view of Regli.

Claims 47 and 95 depend either directly or indirectly from claim 1. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." *See* 35 U.S.C. § 112 paragraph 4. Consequently, claims 47 and 95 are patentable for at least the reasons why claim 1 is patentable. Accordingly, Applicant respectfully requests that The Board hold dependent claims

47 and 95 patentable for at least the foregoing reasons, and issue a Notice of Allowance on same.

**I. Technical Material Cited by Examiner (Mulgund, Bennett, Madden I, and Nelson) Does Not Show or Suggest the Text of Dependent Claims 102-103, 106, 123-124, 127, 148-149, 152, 173-174, and 177: Patentable for at Least Reasons of Dependency from Claims 1, 108, 129 or 154.**

Claims 102-103, 106, 123-124, 127, 148-149, 152, 173-174, and 177 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Nelson.

Claims 102-103, 106, 123-124, 127, 148-149, 152, 173-174, and 177 depend either directly or indirectly from claims 1, 108, 129 or 154. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." *See* 35 U.S.C. § 112 paragraph 4. Consequently, claims 102-103, 106, 123-124, 127, 148-149, 152, 173-174, and 177 are patentable for at least the reasons why claims 1, 108, 129 and 154 are patentable. Accordingly, Applicant respectfully requests that the Board hold dependent claims 102-103, 106, 123-124, 127, 148-149, 152, 173-174, and 177 patentable for at least the foregoing reasons, and issue a Notice of Allowance on same.

**J. Technical Material Cited by Examiner (Mulgund, Bennett, Madden I and Madden TAG) Does Not Show or Suggest the Text of Dependent Claims 107, 128, 153, and 178: Patentable for at Least Reasons of Dependency from Claims 1, 108, 129 or 154.**

Claims 107, 128, 153, and 178 stand rejected under 35 USC §103(a) as being unpatentable over Mulgund in view of Bennett, in view of Madden I and further in view of Madden "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks".

Claims 107, 128, 153, and 178 depend either directly or indirectly from claims 1, 108, 129 or 154. "A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers." *See* 35

U.S.C. § 112 paragraph 4. Consequently, claims 107, 128, 153, and 178 are patentable for at least the reasons why claims 1, 108, 129 and 154 are patentable. Accordingly, Applicant respectfully requests that the Board hold dependent claims 107, 128, 153, and 178 patentable for at least the foregoing reasons, and issue a Notice of Allowance on same.

**K. REJECTIONS OF CLAIMS 108-128 and 154-178 UNDER §112, ¶1 DUE TO FAILING TO COMPLY WITH THE WRITTEN DESCRIPTION REQUIREMENT**

The Examiner rejected claims 108-128 and 154-178 stand rejected under 35 USC §112, ¶1 as failing to comply with the written description requirement. More specifically, the Examiner rejected these claims for containing “subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.” (Office Action mailed 2 April, 2009, p. 5).

Claim 108 to recites:

108. A system comprising:

means for creating a plurality of first-administered content indexes for a first set of notes;

means for aggregating the plurality of first-administered content indexes of the first set of notes into an aggregated content index using a gateway note included within the first set of notes;

means for creating one or more second-administered content indexes for a second set of notes;

means for obtaining at least a part of the second-administered content indexes of the second set of notes; and

means for creating a federated index from the aggregated content index aggregated by the gateway note and at least a part of the one or more second-administered content indexes, wherein at least one of the means for creating or the means for obtaining includes at least one of electrical circuitry for creating or electrical circuitry for obtaining.(Emphasis Added)

Claim 154 to recites:

154. A system comprising:

means for aggregating a plurality of a first-administered content index from a first set of notes into an aggregated content index using an aggregating note from among the first set of notes;

means for receiving at least a part of a second-administered content index from a second set of notes; and

means for creating a federated index from the aggregated content index from the aggregating mote and at least a part of the second-administered content index, wherein at least one of the means for obtaining or the means for creating includes at least one of electrical circuitry for obtaining or electrical circuitry for creating (emphasis added).

As described in Applicant's disclosure, in some implementations,

"In a general sense, those skilled in the art will recognize that the various aspects described herein which can be implemented, individually and/or collectively, by a wide range of hardware, software, firmware, or any combination thereof can be viewed as being composed of various types of "electrical circuitry." Consequently, as used herein "electrical circuitry" includes, but is not limited to, electrical circuitry having at least one discrete electrical circuit, electrical circuitry having at least one integrated circuit, electrical circuitry having at least one application specific integrated circuit, electrical circuitry forming a general purpose computing device configured by a computer program (e.g., a general purpose computer configured by a computer program which at least partially carries out processes and/or devices described herein, or a microprocessor configured by a computer program which at least partially carries out processes and/or devices described herein), electrical circuitry forming a memory device (e.g., forms of random access memory), and/or electrical circuitry forming a communications device (e.g., a modem, communications switch, or optical-electrical equipment)."

For example, Applicant's specification describes:

"In one or more various aspects, related systems include but are not limited to circuitry and/or programming for effecting the herein-referenced method aspects; the circuitry and/or programming can be virtually any combination of hardware, software, and/or firmware configured to effect the herein-referenced method aspects depending upon the design choices of the system designer"

(See Specification (*US Publication No. 20050227686 A1*) paragraphs 10, 12, 110-112).

For the foregoing reasons, Applicant respectfully submits that claims 108 and 154 (and their dependent claims) contain subject matter which was described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed

invention, and respectfully requests reconsideration and withdrawal of the rejections of claims 108-128 and claims 154-178 under 35 USC §112, ¶1.

## **VIII. CONCLUSION**

Appellant may have during the course of prosecution cancelled and/or amended one or more claims. Appellant notes that any such cancellations and/or amendments will have transpired (i) prior to issuance and (ii) in the context of the rules that govern claim interpretation during prosecution before the United States Patent and Trademark Office (USPTO). Appellant notes that the rules that govern claim interpretation during prosecution form a radically different context than the rules that govern claim interpretation subsequent to a patent issuing. Accordingly, Appellant respectfully submits that any cancellations and/or amendments during the course of prosecution should be held to be tangential to and/or unrelated to patentability in the event that such cancellations and/or amendments are viewed in a post-issuance context under post-issuance claim interpretation rules.

Insofar as that the Appellant may have during the course of prosecution cancelled/amended/argued claims sufficient to obtain a Notice of Allowability of all claims pending, Appellant may not have during the course of prosecution explicitly addressed all rejections and/or statements in Examiner's Office Actions. The fact that rejections and/or statements may not be explicitly addressed during the course of prosecution should NOT be taken as an admission of any sort, and Appellant hereby reserves any and all rights to contest such rejections and/or statements at a later time. Specifically, no waiver (legal, factual, or otherwise), implicit or explicit, is hereby intended (e.g., with respect to any facts of which Examiner took Official Notice, and/or for which Examiner has supplied no objective showing, Appellant hereby contests those facts and requests express documentary proof of such facts at such time at which such facts may become relevant). For example, although not expressly set forth during the course of prosecution, Appellant continues to assert all points of (e.g. caused by, resulting from, responsive to, etc.) any previous Office Action, and no waiver (legal, factual, or otherwise), implicit or explicit, is hereby intended. Specifically, insofar as that Appellant

does not consider the unamended claims to be unpatentable, Appellant hereby gives notice that it may intend to file and/or has filed a continuing application in order prosecute such unamended claims.

With respect to any cancelled claims, such cancelled claims were and continue to be a part of the original and/or present patent application(s). Appellant hereby reserves all rights to present any claims for examination at a later time in this or another application. Appellant does NOT intend to dedicate the subject matter of any cancelled claims to the public.

Appellant reserves the right to submit argument, rebuttal evidence, or legal authority in the instance the Board of Patent Appeals and Interferences finds that the Examiner has met his burden in establishing a *prima facie* case of unpatentability of the various appealed claims. Appellant further reserves the right to submit argument, rebuttal evidence, or legal authority if new claim interpretations or definitional citations are raised on appeal. The fact that argument, rebuttal evidence, or legal authority may not have been explicitly discussed during the course of prosecution should NOT be taken as an admission or waiver of any sort, and Appellant hereby reserves any and all rights to discuss (e.g. make explicit, produce, or explain) such rebuttal evidence at a later time.

The Examiner is invited to contact the undersigned at (206) 321-9072 to discuss the above and any other distinctions between the claims and the applied references. Also, if the Examiner notes any informalities in the claims, he is encouraged to contact the undersigned to expediently correct such informalities.

Respectfully submitted,

March 18, 2010

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## **IX. CLAIMS APPENDIX**

1. A method comprising:
  - creating a plurality of first-administered content indexes for a first set of motes;
  - aggregating the plurality of first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote included within the first set of motes;
  - creating one or more second-administered content indexes for a second set of motes;
  - obtaining at least a part of the second-administered content indexes of the second set of motes; and
  - creating a federated index from the aggregated content index aggregated by the gateway mote and at least a part of the one or more second-administered content indexes.
2. The method of claim 1, wherein said creating one or more first-administered content indexes for a first set of motes further comprises:
  - aggregating at least a part of one or more mote-addressed content indexes from the first set of motes.
3. The method of claim 2, wherein said aggregating at least a part of one or more mote-addressed content indexes from the first set of motes further comprises:
  - receiving at least a part of one or more mote-addressed indexes of the first set of motes.
4. The method of claim 2, wherein said aggregating at least a part of one or more mote-addressed content indexes from the first set of motes further comprises:
  - creating one or more multi-mote content indexes of the first set of motes.
5. The method of claim 4, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:

obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes.

6. The method of claim 4, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:

obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes from a multi-mote registry.

7. The method of claim 4, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:

obtaining a pre-loaded listing of motes appropriate to at least one of the one or more multi-mote content indexes.

8. The method of claim 4, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:

obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes from one or more motes to be included in the listing.

9. The method of claim 4, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes.

10. The method of claim 4, wherein said creating one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of at least one of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes.

11. The method of claim 2, wherein said aggregating at least a part of one or more mote-addressed content indexes from the first set of motes further comprises:

receiving at least a part of one or more multi-mote content indexes of the first set of motes.

12. The method of claim 11, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from at least one aggregation of one or more first-administered indexes.

13. The method of claim 11, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from at least one aggregation of one or more first-administered indexes.

14. The method of claim 11, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the first set of motes.

15. The method of claim 11, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the first set of motes.

16. The method of claim 2, wherein said aggregating at least a part of one or more mote-addressed content indexes from the first set of motes further comprises:

creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes.

17. The method of claim 16, wherein said creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

aggregating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of a multi-mote content index.

18. The method of claim 16, wherein said creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

aggregating at least a part of a mote-addressed routing/spatial index of a multi-mote content index.

19. The method of claim 2, wherein said aggregating at least a part of one or more mote-addressed content indexes from the first set of motes further comprises:

migrating to a mote of the first set of motes;

installing a multi-mote index creation agent at the mote; and

receiving at least a part of one or more mote-addressed content indexes with the multi-mote index creation agent.

20. The method of claim 1, wherein said aggregating the plurality of first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote included within the first set of motes further comprises:

receiving at least a part of one or more multi-mote content indexes of the first set of motes.

21. The method of claim 20, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from at least one aggregation of one or more first-administered indexes.

22. The method of claim 20, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from at least one aggregation of one or more first-administered indexes.

23. The method of claim 20, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the first set of motes.

24. The method of claim 20, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the first set of motes.

25. The method of claim 1, wherein said creating one or more first-administered content indexes for a first set of motes further comprises:

determining at least one of a sensing function or a control function at a mote; and  
creating one or more mote-addressed content indexes in response to said determining.

26. The method of claim 25, wherein said determining at least one of a sensing function or a control function at a mote further comprises:

accessing at least one device entity registry.

27. The method of claim 25, wherein said determining at least one of a sensing function or a control function at a mote further comprises:

communicating with at least one device-associated entity.

28. The method of claim 27, wherein said communicating with at least one device-associated entity further comprises:

communicating with at least one of a light device entity, an electrical device entity, a pressure device entity, a temperature device entity, a volume device entity, an inertial device entity, or an antenna entity.

29. The method of claim 27, wherein said communicating with at least one device-associated entity further comprises:

accessing at least one device identifier of a mote-addressed content index.

30. The method of claim 25, wherein said determining at least one of a sensing function or a control function at a mote further comprises:

communicating with at least one device entity using a common application protocol.

31. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

creating at least one extensible index.

32. The method of claim 31, wherein said creating at least one extensible index further comprises:

creating the at least one extensible index in response to a type of content indexed.

33. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

creating at least one of a mote-addressed sensing index or a mote-addressed control index.

34. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

creating at least one of a mote-addressed routing/spatial index.

35. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

inserting at least one device identifier in the one or more mote-addressed content indexes.

36. The method of claim 1, wherein said creating one or more mote-addressed content indexes comprises:

establishing an index-creating agent at a first gateway mote of the first set of motes;

determining a mote-network address of the first gateway mote; and

associating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index with the mote-network address of the first gateway mote.

37. The method of claim 1, wherein said creating one or more mote-addressed content indexes comprises:

migrating to a first gateway mote of the first set of motes;

installing an index creation agent at the first gateway mote; and

querying at least one device entity with the index creation agent.

38. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

determining a mote-network address of a mote of the first set of motes;

determining one or more types of control available from one or more devices of the mote; and

associating the one or more types of control available from one or more devices of the mote with the mote-network address of the mote.

39. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

- determining a mote-network address of a mote of the first set of motes;
- determining one or more types of sensing available from one or more devices of the mote; and
- associating the one or more types of sensing available from one or more devices of the mote with the mote-network address of the mote.

40. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

- determining a mote-network address of a mote of the first set of motes;
- determining one or more types of spatial information related to devices of or proximate to the mote; and
- associating the one or more types of spatial information related to devices of or proximate to the mote with the mote-network address of the mote.

41. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

- determining a mote-network address of a mote of the first set of motes;
- determining one or more types of absolute or relative spatial information of other motes proximate to the mote; and
- associating the one or more types of absolute or relative spatial information of other motes proximate to the mote with the mote-network address of the mote.

42. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

- associating one or more mote-appropriate routing addresses with the one or more mote-addressed content indexes.

43. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:



associating one or more mote-appropriate routing addresses with at least one directly mote-addressed content index.

44. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

associating one or more mote-appropriate routing addresses with at least one indirectly mote-addressed content index.

45. The method of claim 25, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

selecting from one or more predetermined protocols.

46. The method of claim 45, wherein said selecting from one or more predetermined protocols further comprises:

publishing at least a part of an identifier of the selected predetermined protocol.

47. The method of claim 45, wherein said selecting from one or more predetermined protocols further comprises:

encryption utilizing at least one of a private and a public key.

48. The method of claim 1, wherein said aggregating the plurality of first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote included within the first set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes.

49. The method of claim 1, wherein said aggregating the plurality of ~~more~~ first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote included within the first set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes.

50. The method of claim 1, wherein said creating one or more second-administered content indexes for a second set of motes further comprises:

aggregating at least a part of one or more mote-addressed content indexes from the second set of motes.

51. The method of claim 50, wherein said aggregating at least a part of one or more mote-addressed content indexes from the second set of motes further comprises:

receiving at least a part of one or more mote-addressed indexes of the second set of motes.

52. The method of claim 50, wherein said aggregating at least a part of one or more mote-addressed content indexes from the second set of motes further comprises:

creating one or more multi-mote content indexes of the second set of motes.

53. The method of claim 52, wherein said creating one or more multi-mote content indexes of the second set of motes further comprises:

obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes.

54. The method of claim 52, wherein said creating one or more multi-mote content indexes of the second set of motes further comprises:

obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes from a multi-mote registry.

55. The method of claim 52, wherein said creating one or more multi-mote content indexes of the second set of motes further comprises:

obtaining a pre-loaded listing of motes appropriate to at least one of the one or more multi-mote content indexes.

56. The method of claim 52, wherein said creating one or more multi-mote content indexes of the second set of motes further comprises:

obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes from one or more motes to be included in the listing.

57. The method of claim 52, wherein said creating one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the second set of motes.

58. The method of claim 52, wherein said creating one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of at least one of a mote-addressed routing/spatial index from a reporting entity at a mote of the second set of motes.

59. The method of claim 50, wherein said aggregating at least a part of one or more mote-addressed content indexes from the second set of motes further comprises:

receiving at least a part of one or more multi-mote content indexes of the second set of motes.

60. The method of claim 59, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from at least one aggregation of one or more second-administered indexes.

61. The method of claim 59, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from at least one aggregation of one or more second-administered indexes.

62. The method of claim 59, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the second set of motes.

63. The method of claim 59, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the second set of motes.

64. The method of claim 50, wherein said aggregating at least a part of one or more mote-addressed content indexes from the second set of motes further comprises:

creating an aggregate of at least a part of one or more multi-mote content indexes of the second set of motes.

65. The method of claim 64, wherein said creating an aggregate of at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

aggregating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of a multi-mote content index.

66. The method of claim 64, wherein said creating an aggregate of at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

aggregating at least a part of a mote-addressed routing/spatial index of a multi-mote content index.

67. The method of claim 50, wherein said aggregating at least a part of one or more mote-addressed content indexes from the second set of motes further comprises:

migrating to a mote of the second set of motes;  
installing a multi-mote index creation agent at the mote; and  
receiving at least a part of one or more mote-addressed content indexes with the multi-mote index creation agent.

68. The method of claim 1, wherein said obtaining at least a part of the second-administered content indexes of the second set of motes further comprises:

receiving at least a part of one or more multi-mote content indexes of the second set of motes.

69. The method of claim 68, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from at least one aggregation of one or more second-administered indexes.

70. The method of claim 68, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from at least one aggregation of one or more second-administered indexes.

71. The method of claim 68, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the second set of motes.

72. The method of claim 68, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the second set of motes.

73. The method of claim 1, wherein said creating one or more second-administered content indexes for a second set of motes further comprises:

determining at least one of a sensing function or a control function at a mote; and  
creating one or more mote-addressed content indexes in response to said determining.

74. The method of claim 73, wherein said determining at least one of a sensing function or a control function at a mote further comprises:

accessing at least one device entity registry.

75. The method of claim 73, wherein said determining at least one of a sensing function or a control function at a mote further comprises:

communicating with at least one device-associated entity.

76. The method of claim 75, wherein said communicating with at least one device-associated entity further comprises:

communicating with at least one of a light device entity, an electrical device entity, a pressure device entity, a temperature device entity, a volume device entity, an inertial device entity, or an antenna entity.

77. The method of claim 75, wherein said communicating with at least one device-associated entity further comprises:

accessing at least one device identifier of a mote-addressed content index.

78. The method of claim 73, wherein said determining at least one of a sensing function or a control function at a mote further comprises:

communicating with at least one device entity using a common application protocol.

79. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:  
creating at least one extensible index.

80. The method of claim 79, wherein said creating at least one extensible index further comprises:  
creating the at least one extensible index in response to a type of content indexed.

81. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:  
creating at least one of a mote-addressed sensing index or a mote-addressed control index.

82. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:  
creating at least one of a mote-addressed routing/spatial index.

83. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:  
inserting at least one device identifier in the one or more mote-addressed content indexes.

84. The method of claim 36, wherein said creating one or more mote-addressed content indexes further comprises:  
establishing an index-creating agent at a second gateway mote of the second set of motes;  
determining a mote-network address of the second gateway mote; and  
associating at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index with the mote-network address of the second gateway mote.

85. The method of claim 37, wherein said creating one or more mote-addressed content indexes further comprises:

- migrating to a second gateway mote of the second set of motes;
- installing an index creation agent at the second gateway mote; and
- querying at least one device entity with the index creation agent.

86. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

- determining a mote-network address of a mote of the second set of motes;
- determining one or more types of control available from one or more devices of the mote; and
- associating the one or more types of control available from one or more devices of the mote with the mote-network address of the mote.

87. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

- determining a mote-network address of a mote of the second set of motes;
- determining one or more types of sensing available from one or more devices of the mote; and
- associating the one or more types of sensing available from one or more devices of the mote with the mote-network address of the mote.

88. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

- determining a mote-network address of a mote of the second set of motes;
- determining one or more types of spatial information related to devices of or proximate to the mote; and
- associating the one or more types of spatial information related to devices of or proximate to the mote with the mote-network address of the mote.



89. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

determining a mote-network address of a mote of the second set of motes;

determining one or more types of absolute or relative spatial information of other motes proximate to the mote; and

associating the one or more types of absolute or relative spatial information of other motes proximate to the mote with the mote-network address of the mote.

90. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

associating one or more mote-appropriate routing addresses with the one or more mote-addressed content indexes.

91. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

associating one or more mote-appropriate routing addresses with at least one directly mote-addressed content index.

92. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

associating one or more mote-appropriate routing addresses with at least one indirectly mote-addressed content index.

93. The method of claim 73, wherein said creating one or more mote-addressed content indexes in response to said determining further comprises:

selecting from one or more predetermined protocols.

94. The method of claim 93, wherein said selecting from one or more predetermined protocols further comprises:

publishing at least a part of an identifier of the selected established standard or protocol.

95. The method of claim 93, wherein said predetermined protocols further comprises:

encryption utilizing at least one of a private and a public key.

96. The method of claim 1, wherein said obtaining at least a part of the second-administered content indexes of the second set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the second set of motes.

97. The method of claim 1, wherein said obtaining at least a part of the second-administered content indexes of the second set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from a reporting entity at a mote of the second set of motes.

98. The method of claim 1, wherein said creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

creating the federated index from at least a part of one or more multi-mote content indexes of the first set of motes.

99. The method of claim 1, wherein said creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

creating the federated index from at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of the first set of motes.

100. The method of claim 1, wherein said creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

creating the federated index from at least a part of one or more multi-mote content indexes of the second set of motes.

101. The method of claim 1, wherein said creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

creating the federated index from at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of the second set of motes.

102. The method of claim 1, wherein said creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

generating the federated index to have one or more entries noting one or more respective administrative domains of one or more content index entries.

103. The method of claim 1, wherein said creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

generating the federated index to have access information to one or more content indexes for an administered content index.

104. The method of claim 1, wherein said creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

generating the federated index to have information pertaining to a currency of at least one entry of an administered content index.

105. The method of claim 1, wherein said creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

generating the federated index to have information pertaining to an expiration of at least one entry of an administered content index.

106. The method of claim 1, wherein said creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

generating the federated index to have metadata pertaining to an administrative domain, wherein the metadata includes at least one of an ownership indicator, an access right indicator, an index refresh indicator, or a predefined policy indicator.

107. The method of claim 1, wherein said creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

generating the federated index to have an administrative domain-specific query string generated for or supplied by an administrative domain to produce an updated content index for that domain.

108. A system comprising:

means for creating a plurality of first-administered content indexes for a first set of notes;

means for aggregating the plurality of first-administered content indexes of the first set of notes into an aggregated content index using a gateway note included within the first set of notes;

means for creating one or more second-administered content indexes for a second set of notes;

means for obtaining at least a part of the second-administered content indexes of the second set of notes; and

means for creating a federated index from the aggregated content index aggregated by the gateway note and at least a part of the one or more second-administered content indexes, wherein at least one of the means for creating or the means

for obtaining includes at least one of electrical circuitry for creating or electrical circuitry for obtaining.

109. The system of claim 108, wherein said means for creating one or more first-administered content indexes for a first set of motes further comprises:

means for aggregating at least a part of one or more mote-addressed content indexes from the first set of motes.

110. The system of claim 108, wherein said means for aggregating the plurality of first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote included within the first set of motes further comprises:

means for receiving at least a part of one or more multi-mote content indexes of the first set of motes.

111. The system of claim 108, wherein said means for creating one or more first-administered content indexes for a first set of motes further comprises:

means for determining at least one of a sensing function or a control function at a mote; and

means for creating one or more mote-addressed content indexes in response to said means for determining.

112. The system of claim 108, wherein said means for aggregating the plurality of first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote included within the first set of motes further comprises:

means for receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes.

113. The system of claim 108, wherein said means for aggregating the plurality of first-administered content indexes of the first set of motes into an aggregated content index using a gateway mote included within the first set of motes further comprises:

means for receiving at least a part of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes.

114. The system of claim 108, wherein said means for creating one or more second-administered content indexes for a second set of motes further comprises:

means for aggregating at least a part of one or more mote-addressed content indexes from the second set of motes.

115. The system of claim 108, wherein said means for obtaining at least a part of the second-administered content indexes of the second set of motes further comprises:

means for receiving at least a part of one or more multi-mote content indexes of the second set of motes.

116. The system of claim 108, wherein said means for creating one or more second-administered content indexes for a second set of motes further comprises:

means for determining at least one of a sensing function or a control function at a mote; and means for creating one or more mote-addressed content indexes in response to said means for determining.

117. The system of claim 108, wherein said means for obtaining at least a part of the second-administered content indexes of the second set of motes further comprises:

means for receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the second set of motes.

118. The system of claim 108, wherein said means for obtaining at least a part of the second-administered content indexes of the second set of motes further comprises:

means for receiving at least a part of a mote-addressed routing/spatial index from a reporting entity at a mote of the second set of motes.

119. The system of claim 108, wherein said means for creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

means for creating the federated index from at least a part of one or more multi-mote content indexes of the first set of motes.

120. The system of claim 108, wherein said means for creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

means for creating the federated index from at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of the first set of motes.

121. The system of claim 108, wherein said means for creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

means for creating the federated index from at least a part of one or more multi-mote content indexes of the second set of motes.

122. The system of claim 108, wherein said means for creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

means for creating the federated index from at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of the second set of motes.

123. The system of claim 108, wherein said means for creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

means for generating the federated index to have one or more entries noting one or more respective administrative domains of one or more content index entries.

124. The system of claim 108, wherein said means for creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

means for generating the federated index to have access information to one or more content indexes for an administered content index.

125. The system of claim 108, wherein said means for creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

means for generating the federated index to have information pertaining to a currency of at least one entry of an administered content index.

126. The system of claim 108, wherein said means for creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

means for generating the federated index to have information pertaining to an expiration of at least one entry of an administered content index.

127. The system of claim 108, wherein said means for creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:

means for generating the federated index to have metadata pertaining to an administrative domain, wherein the metadata includes at least one of an ownership indicator, an access right indicator, an index refresh indicator, or a predefined policy indicator.

128. The system of claim 108, wherein said means for creating a federated index from at least a part of the one or more first-administered content indexes and at least a part of the one or more second-administered content indexes further comprises:



means for generating the federated index to have an administrative domain-specific query string generated for or supplied by an administrative domain to produce an updated content index for that domain.

129. A method comprising:

aggregating a plurality of first-administered content indexes from a first set of motes into an aggregated content index using an aggregating mote from among the first set of motes;

obtaining at least a part of a second-administered content index from a second set of motes; and

creating a federated index from the aggregated content index from the aggregating mote and at least a part of the second-administered content index.

130. The method of claim 129, wherein said obtaining at least a part of a first-administered content index from a first set of motes further comprises:

receiving at least a part of one or more multi-mote content indexes of the first set of motes.

131. The method of claim 130, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from at least one aggregation of one or more first-administered indexes.

132. The method of claim 130, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from at least one aggregation of one or more first-administered indexes.

133. The method of claim 130, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the first set of motes.

134. The method of claim 130, wherein said receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the first set of motes.

135. The method of claim 129, wherein said obtaining at least a part of a first-administered content index from a first set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes.

136. The method of claim 129, wherein said obtaining at least a part of a first-administered content index from a first set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes.

137. The method of claim 129, wherein said obtaining at least a part of a second-administered content index from a second set of motes further comprises:

receiving at least a part of one or more multi-mote content indexes of the second set of motes.

138. The method of claim 137, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from at least one aggregation of one or more second-administered indexes.

139. The method of claim 137, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from at least one aggregation of one or more second-administered indexes.

140. The method of claim 137, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the second set of motes.

141. The method of claim 137, wherein said receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the second set of motes.

142. The method of claim 129, wherein said obtaining at least a part of a second-administered content index from a second set of motes further comprises:

receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the second set of motes.

143. The method of claim 129, wherein said obtaining at least a part of a second-administered content index from a second set of motes further comprises:

receiving at least a part of a mote-addressed routing/spatial index from a reporting entity at a mote of the second set of motes.

144. The method of claim 129, wherein said creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

creating the federated index from at least a part of one or more multi-mote content indexes of the first set of motes.

145. The method of claim 129, wherein said creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

creating the federated index from at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of the first set of motes.

146. The method of claim 129, wherein said creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

creating the federated index from at least a part of one or more multi-mote content indexes of the second set of motes.

147. The method of claim 129, wherein said creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

creating the federated index from at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of the second set of motes.

148. The method of claim 129, wherein said creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

generating the federated index to have one or more entries noting one or more respective administrative domains of one or more content index entries.

149. The method of claim 129, wherein said creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

generating the federated index to have access information to one or more content indexes for an administered content index.

150. The method of claim 129, wherein said creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

generating the federated index to have information pertaining to a currency of at least one entry of an administered content index.

151. The method of claim 129, wherein said creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

generating the federated index to have information pertaining to an expiration of at least one entry of an administered content index.

152. The method of claim 129, wherein said creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

generating the federated index to have metadata pertaining to an administrative domain, wherein the metadata includes at least one of an ownership indicator, an access right indicator, an index refresh indicator, or a predefined policy indicator.

153. The method of claim 129, wherein said creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

generating the federated index to have an administrative domain-specific query string generated for or supplied by an administrative domain to produce an updated content index for that domain.

154. A system comprising:

means for aggregating a plurality of a first-administered content index from a first set of motes into an aggregated content index using an aggregating mote from among the first set of motes;

means for receiving at least a part of a second-administered content index from a second set of motes; and

means for creating a federated index from the aggregated content index from the aggregating mote and at least a part of the second-administered content index, wherein at least one of the means for obtaining or the means for creating includes at least one of electrical circuitry for obtaining or electrical circuitry for creating.

155. The system of claim 154, wherein said means for obtaining at least a part of a first-administered content index from a first set of motes further comprises:

means for receiving at least a part of one or more multi-mote content indexes of the first set of motes.

156. The system of claim 155, wherein said means for receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

means for receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from at least one aggregation of one or more first-administered indexes.

157. The system of claim 155, wherein said means for receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

means for receiving at least a part of a mote-addressed routing/spatial index from at least one aggregation of one or more first-administered indexes.

158. The system of claim 155, wherein said means for receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

means for receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the first set of motes.

159. The system of claim 155, wherein said means for receiving at least a part of one or more multi-mote content indexes of the first set of motes further comprises:

means for receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the first set of motes.

160. The system of claim 154, wherein said means for obtaining at least a part of a first-administered content index from a first set of motes further comprises:

means for receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the first set of motes.

161. The system of claim 154, wherein said means for obtaining at least a part of a first-administered content index from a first set of motes further comprises:

means for receiving at least a part of a mote-addressed routing/spatial index from a reporting entity at a mote of the first set of motes.

162. The system of claim 154, wherein said means for obtaining at least a part of a second-administered content index from a second set of motes further comprises:

means for receiving at least a part of one or more multi-mote content indexes of the second set of motes.

163. The system of claim 162, wherein said means for receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

means for receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from at least one aggregation of one or more second-administered indexes.

164. The system of claim 162, wherein said means for receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

means for receiving at least a part of a mote-addressed routing/spatial index from at least one aggregation of one or more second-administered indexes.

165. The system of claim 162, wherein said means for receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

means for receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a multi-mote reporting entity at a mote of the second set of motes.

166. The system of claim 162, wherein said means for receiving at least a part of one or more multi-mote content indexes of the second set of motes further comprises:

means for receiving at least a part of a mote-addressed routing/spatial index from a multi-mote reporting entity at a mote of the second set of motes.

167. The system of claim 154, wherein said means for obtaining at least a part of a second-administered content index from a second set of motes further comprises:

means for receiving at least a part of at least one of a mote-addressed sensing index or a mote-addressed control index from a reporting entity at a mote of the second set of motes.

168. The system of claim 154, wherein said means for obtaining at least a part of a second-administered content index from a second set of motes further comprises:

means for receiving at least a part of a mote-addressed routing/spatial index from a reporting entity at a mote of the second set of motes.

169. The system of claim 154, wherein said means for creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

means for creating the federated index from at least a part of one or more multi-mote content indexes of the first set of motes.



170. The system of claim 154, wherein said means for creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

means for creating the federated index from at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of the first set of motes.

171. The system of claim 154, wherein said means for creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

means for creating the federated index from at least a part of one or more multi-mote content indexes of the second set of motes.

172. The system of claim 154, wherein said means for creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

means for creating the federated index from at least a part of at least one of a mote-addressed sensing index, a mote-addressed control index, or a mote-addressed routing/spatial index of the second set of motes.

173. The system of claim 154, wherein said means for creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

means for generating the federated index to have one or more entries noting one or more respective administrative domains of one or more content index entries.

174. The system of claim 154, wherein said means for creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

means for generating the federated index to have access information to one or more content indexes for an administered content index.

175. The system of claim 154, wherein said means for creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

means for generating the federated index to have information pertaining to a currency of at least one entry of an administered content index.

176. The system of claim 154, wherein said means for creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

means for generating the federated index to have information pertaining to an expiration of at least one entry of an administered content index.

177. The system of claim 154, wherein said means for creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

means for generating the federated index to have metadata pertaining to an administrative domain, wherein the metadata includes at least one of an ownership indicator, an access right indicator, an index refresh indicator, or a predefined policy indicator.

178. The system of claim 154, wherein said means for creating a federated index from at least a part of the first-administered content index and at least a part of the second-administered content index further comprises:

means for generating the federated index to have an administrative domain-specific query string generated for or supplied by an administrative domain to produce an updated content index for that domain.

179. A system comprising:

at least one computational system having electrical circuitry and being operably coupled with a first-administered set of motes and a second-administered set of motes;

at least one gateway mote included within at least one of the first-administered set of motes or the second-administered set of motes, the at least one gateway mote including a multi-mote index creation agent configured to:

receive a plurality of content indexes from a corresponding plurality of motes of the at least one of the first-administered set of motes or the second-administered set of motes, and

aggregate the plurality of content indexes into at least one aggregated index associated with the at least one of the first-administered set of motes or the second-administered set of motes, respectively; and

at least one federated index creation agent resident in the computational system, said at least one federated index creation agent configured to receive the at least one aggregated index, and to create a federated index that includes the at least one aggregated index.

180. A system comprising:

at least one computational system having electrical circuitry and being operably coupled with a first-administered set of motes and a second-administered set of motes;

at least one gateway mote included within at least one of the first-administered set of motes or the second-administered set of motes, the at least one gateway mote including a multi-mote index creation agent configured to:

receive a plurality of content indexes from a corresponding plurality of motes of the at least one of the first-administered set of motes or the second-administered set of motes, and

aggregate the plurality of content indexes into at least one aggregated index associated with the at least one of the first-administered set of motes or the second-administered set of motes, respectively; and

at least one federated index resident in the computational system, said at least one at least one federated index configured to contain the at least one aggregated index.

**X. EVIDENCE APPENDIX**

Not Applicable.

## **XI. RELATED PROCEEDINGS APPENDIX**

Not Applicable.